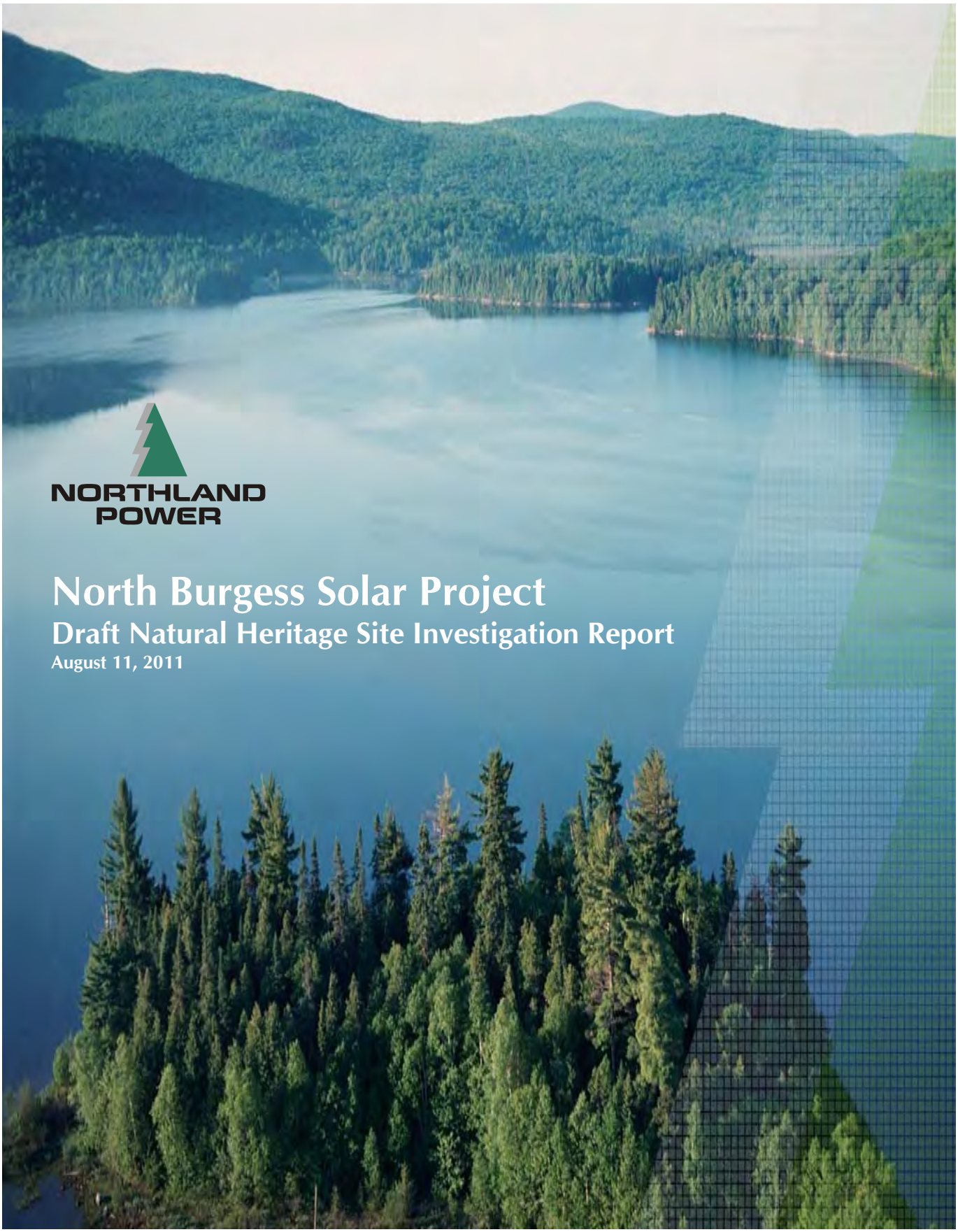

NORTHLAND POWER

North Burgess Solar Project

Draft Natural Heritage Site Investigation Report

August 11, 2011

Northland Power Inc.
on behalf of
Northland Power Solar
North Burgess L.P.
Toronto, Ontario

DRAFT Natural Heritage Site Investigation Report

North Burgess Solar Project

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Rev. 0
August 11, 2011

Project Report

August 11, 2011

Northland Power Inc.

North Burgess Solar Project

DRAFT Natural Heritage Site Investigation Report

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1. Introduction

1.1 Project Description

Northland Power Inc. on behalf of Northland Power Solar North Burgess L.P. (hereinafter referred to as "Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic project titled North Burgess Solar Project (hereinafter referred to as the "Project").

The Project is located on a property approximately 78 hectares (ha) in size and is situated on Narrows Lock Road near the intersection with Scotch Line, within the Township of Tay Valley, within Lanark County (Figure 1.1).

1.2 Legislative Requirements

Ontario Regulation (O. Reg.) 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 Renewable Energy Approval (REA) requirements for renewable energy projects in Ontario. Per Section 4 of the REA Regulation, ground mounted solar facilities with a name plate capacity greater than 10 kilowatts (kW) are classified as Class 3 solar facilities and do require a REA.

Section 26 of the REA Regulation requires proponents of Class 3 solar projects to undertake a natural heritage site investigation for the purpose of determining

- 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
- whether any additional natural features exist, other than those that were identified in the Natural Heritage Records Review) report prepared under Subsection 25 (3)
- the boundaries, located within 120 m of the project location, of any natural feature that was identified in the records review or the site investigation; and
- 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

a) an area of natural and scientific interest (ANSI) (earth science)

b) an ANSI (life science)

c) a coastal wetland

d) a northern wetland

e) a southern wetland

f) a valleyland

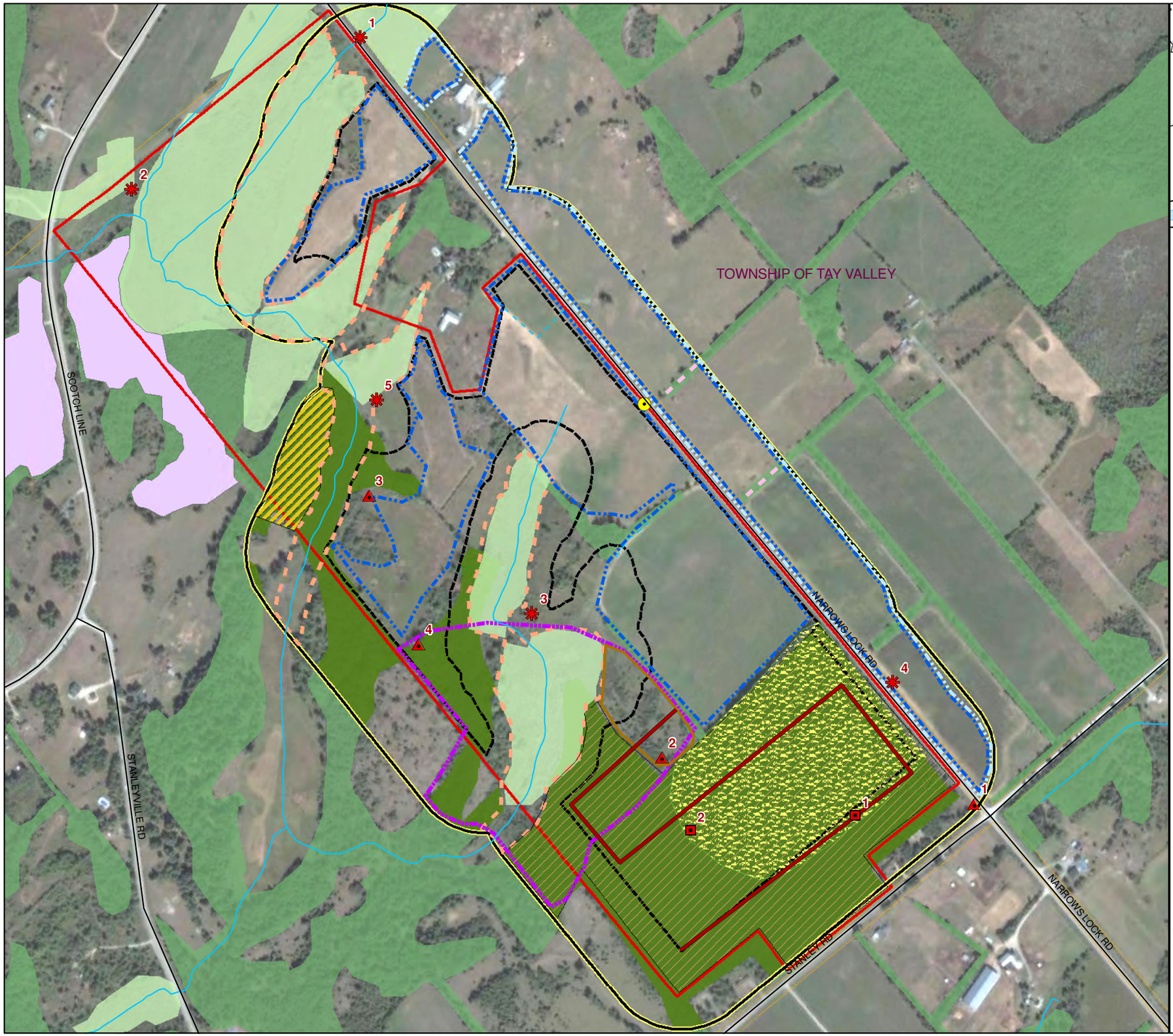
g) a wildlife habitat, or

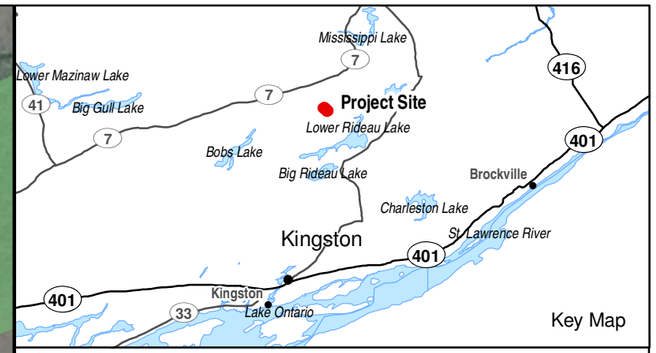
h) a woodland.

Subsection 3 of Section 26 of the REA Regulation requires the proponent to prepare a report setting out 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
    i. the boundaries mentioned in Clause (1) (c)
    ii. the location and type of each natural feature identified in relation to the project location
    iii. 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 prepared to meet these requirements.





Legend

- Amphibian Point Count Location
- Raptor Playback Location
- Breeding Bird Point Count Location
- Breeding Bird Area Search Transect
- Road
- Grassed Waterway
- Watercourse
- Project Site
- Parcel

Candidate Significant Natural Features

- Wetland / Amphibian Breeding Habitat
- Woodland
- Forest Providing a High Diverstiy of Habitat / Animal Movement Corridor
- Old Growth or Mature Forest
- Old Growth Forest (as identified by MNR)
- Animal Movement Corridor / Western Chorus Frog Habitat / Eastern Ribbonsnake Habitat / Snapping Turtle Habitat / Northern Map Turtle Habitat
- Black and White Warbler / Ovenbird / Magnolia Warbler American Redstart / Eastern Wood-Pewee Habitat
- Brown Thrasher Habitat
- Eastern Meadowlark / Field Sparrow Habitat
- Northern Flicker / Baltimore Oriole Habitat
- Raptor Winter Feeding and Roosting Area / Milksnake Habitat / Highly Diverse Areas
- Savannah Sparrow / Northern Harrier Habitat
- Veery Habitat
- White Breasted Nuthatch / Pileated Woodpecker / Blackburnian Warbler Habitat

Project Components

- Connection Point With Existing Distribution Line
- Project Location
- 120 m from Project Location

NORTH

0 50 100 200 Meters

1:6,000

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Old Growth Forest data based on information by Information Management & Planning Kemptville District.
3. Spatial referencing UTM NAD 83.
4. Satellite imagery from Google Earth Pro.

Figure 1.1
Northland Power Inc.
North Burgess Solar Project
Project Location and Natural Heritage Features

HATCH

P:\\NiaDATA2\Projects\NORTHLAND\333751\DATABASES\334844\GIS\NBurgess\North Burgess - landSite Investigation_SI.mxd Last updated Thursday, August 11, 2011

Back Figure 1.1

2. Summary of Results of Records Review

Table 2.1 summarizes the results of the records review (Hatch, 2010).

Table 2.1 Summary of Records Review Determinations

Determination to be made	Yes/No	Description
Is the Project in a natural feature?	Yes	There are woodlands identified on the Project location.
Is the Project within 50 m of an ANSI (earth science)?	No	The nearest earth science ANSI is located several kilometres from the Project location.
Is the Project within 120 m of a natural feature that is not an ANSI (earth science)?	Yes	There are woodlands and wetlands located within 120 m of the Project location

Therefore, some components of the Project will be located within 120 m of a natural feature.

3. Site Investigation Methodology

3.1 Hatch Site Visits

3.1.1 Site Investigation 1

3.1.1.1 Date, Time, and Duration of Site Investigation

- Date: June 23, 2010
- Start Time: 0830
- End Time: 1730
- Duration: approximately 9 hours

3.1.1.2 Weather Conditions During Site Investigation

- Temperature: 22ºC
- Beaufort Wind: 2
- Cloud Cover: 100%

3.1.1.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Martine Esraelian.

Martine Esraelian, B.Sc. is an Environmental Scientist specializing in species at risk and terrestrial ecosystems. She has a B.Sc. from Trent University where she specialized in Conservation Biology and Ecological Management and an Ecosystem Management Technician diploma from Sir Sandford Fleming College. During her time at Trent University, she completed a 1-yr internship with the MNR, which involved developing a genetic-based protocol for the extraction of DNA from unknown turtle eggshells to assist with species identification. The project entailed extensive molecular

genetics research and intensive lab work to develop a protocol able to supplement existing conservation management practices.

She offers expertise across the full breadth of the field from environmental assessments and technical analysis of environmental data to conservation management, corporate and government consulting, and community outreach. Martine has liaised with all levels of government, the community, and a portfolio of clients that includes consulting firms, planners, and high-profile developers. She has both technical and hands-on experience conducting site investigations (terrestrial and aquatic), evaluations of significance, environmental and agricultural impact studies, constraint analyses, water quality and soil assessments, species at risk, wildlife management and fisheries studies to meet regulatory requirements.

Martine has a wide range of field experience related to terrestrial and aquatic ecosystems and species at risk. She has conducted reptile and amphibian surveys, small-mammal trapping, benthic invertebrate monitoring and fisheries inventories (seine netting and electrofishing). She has conducted detailed natural areas inventories which involve species identification of flora and fauna, vegetation community mapping, identifying rare vegetation communities and significant wildlife habitats.

Martine has project management and fieldwork experience for a number of species at risk monitoring projects. Some of the species she has been involved with include: fowler's toad, eastern massasauga rattlesnake, eastern ratsnake, queensnake, eastern ribbonsnake, milksnake, blanding's turtle, map turtle, spotted turtle, snapping turtle, Jefferson salamander, northern dusky and mountain alleghany dusky salamander, butternut, flowering dogwood, swamp rose mallow and spoon-leaved moss.

Martine is a certified Butternut Health Assessor and also holds a certificate in the Ecological Land Classification (ELC) system.

3.1.1.4 Survey Methods

The purpose of this site visit was to identify natural heritage features. To do so, the entire site was searched by the observer on foot in order to document natural features. Photographs of the site were taken. Any observations of wildlife, vegetation, or natural features were noted.

A copy of the field notes kept by the observer is provided in Appendix A.

3.1.2 Site Investigation 2

3.1.2.1 Date, Time, and Duration of Site Investigation

- Date: October 8, 2010
- Start Time: 1205
- End Time: 1705
- Duration: approximately 5 hours

3.1.2.2 Weather Conditions During Site Investigation

- Temperature: 18ºC
- Beaufort Wind: 2

3.1.2.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin.

Caleb is an environmental technologist with experience in fisheries and fish habitat assessments. Recent projects have included spawning surveys (Muskoka and Trout Lake rivers), Riverine Index Netting (White Lake and Mattagami River), Fall Walleye Index Netting (Mattagami River), forage fish collection, Brook Trout mark and recapture studies and Ontario Broad-scale Monitoring (OBM). A recent study required a complete fish community inventory involving electrofishing, trap netting and seine netting (Shickluna Hydro Development). He has participated in a number of other resource management studies focusing on aquatic and terrestrial ecosystems including assessments of natural heritage features, aquatic invasive species, avian populations, large mammals, furbearers and sustainable forestry practises.

3.1.2.4 Survey Methods

The purpose of this site visit was to further characterize the woodland on the southern portion of the Project location. Transects through the woodland were walked and characteristics of the woodland community noted. Any observations of wildlife, vegetation, or natural features were noted.

A copy of the field notes kept by the observer is provided in Appendix A.

3.1.3 Site Investigation 3

3.1.3.1 Date, Time, and Duration of Site Investigation

- Date: May 7, 2011
- Start Time: 0815
- End Time: 1330
- Duration: approximately 5.25 hours

3.1.3.2 Weather Conditions During Site Investigation

- Temperature: 14ºC
- Beaufort Wind: 2
- Cloud Cover: 0%

3.1.3.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Norm Bolton.

Caleb is an environmental technologist with experience in fisheries and fish habitat assessments. Recent projects have included spawning surveys (Muskoka and Trout Lake rivers), Riverine Index Netting (White Lake and Mattagami River), Fall Walleye Index Netting (Mattagami River), forage fish collection, Brook Trout mark and recapture studies and Ontario Broad-scale Monitoring (OBM). A

recent study required a complete fish community inventory involving electrofishing, trap netting and seine netting (Shickluna Hydro Development). He has participated in a number of other resource management studies focusing on aquatic and terrestrial ecosystems including assessments of natural heritage features, aquatic invasive species, avian populations, large mammals, furbearers and sustainable forestry practises.

Norm Bolton is a Fish and Wildlife Technologist with 5 years experience of multi disciplinary contracts with the Bancroft District Ministry of Natural Resources and as a Hatch Contract staff specializing in a variety of fish and wildlife technical studies. Norm has extensive knowledge of aquatic systems with lead roles in the Ontario broadscale monitoring programs, spawning assessments, aquatic inventory and wetland evaluations. He is also well versed in wildlife and terrestrial studies acting as forestry compliance technician, wildlife technician, marsh monitoring program participant and an assistant instructor to the Ontario Fur Harvester Management Course.

3.1.3.4 Survey Methods

The purpose of this site investigation was to:

- conduct a snake emergence survey. The survey was conducted by completing transects of lands on and within 120 m of the Project location. Transects were spaced 20 m apart within wooded or shrubby areas, and 50 m apart in open areas. Surveys commenced at 0940 and were completed by 1330
- conduct a raptor nesting survey. Four call playback stations were used and are shown in Figure 1.1. Playbacks consisted of 3 minutes of passive observations, followed by alternating 30 second playback of raptor calls and 30 seconds of passive observation. Raptor species whose calls were broadcast included species whose observation would contribute towards identification of significant woodland raptor nesting habitat; Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk and Merlin. Following the call playbacks, 3 minutes of passive observation was completed.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.4 Site Investigation 4

3.1.4.1 Date, Time, and Duration of Site Investigation

- Date: May 7, 2011
- Start Time: 2010
- End Time: 2330
- Duration: approximately 3.5 hours

3.1.4.2 Weather Conditions During Site Investigation

- Temperature: 10ºC
- Beaufort Wind: 2

3.1.4.3 *Name and Qualifications of Person Conducting Site Investigation*

The site investigation was completed by Caleb Coughlin and Norm Bolton. Qualifications for these individuals have been previously provided.

3.1.4.4 *Survey Methods*

The purpose of this site investigation was to:

- conduct an amphibian calling survey. The survey was conducted in accordance with the protocols of the marsh monitoring program, i.e. 180° degree, 3 minute surveys. Five survey locations were used, these locations are identified within Figure 1.1.
- conduct an owl nesting survey. Four call playback stations were used and are shown in Figure 1.1. Playbacks consisted of 3 minutes of passive observations, followed by alternating 30 second playback of owl calls and 30 seconds of passive observation. Owl species whose calls were broadcast included species whose observation would contribute towards identification of significant woodland raptor nesting habitat; Northern Saw-whet Owl, Long-eared Owl and Barred Owl. Following the call playbacks, 3 minutes of passive observation was completed.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.5 Site Investigation 5

3.1.5.1 *Date, Time, and Duration of Site Investigation*

- Date: June 1, 2011
- Start Time: 1638
- End Time: 1830
- Duration: approximately 1 hour 50 minutes

3.1.5.2 *Weather Conditions During Site Investigation*

- Temperature: 27ºC
- Beaufort Wind: 4
- Cloud Cover: 10%

3.1.5.3 *Name and Qualifications of Person Conducting Site Investigation*

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.5.4 *Survey Methods*

The purpose of this site visit was to commence Ecological Land Classification (ELC) according to the ELC for Southern Ontario for the woodlands on the Project location. Representative points were selected within the woodland communities; locations are shown in Figure 1.1. ELC data sheets were completed and are provided in Appendix A.

3.1.6 Site Investigation 6

3.1.6.1 Date, Time, and Duration of Site Investigation

- Date: June 1, 2011
- Start Time: 2045
- End Time: 2130
- Duration: approximately 45 minutes

3.1.6.2 Weather Conditions During Site Investigation

- Temperature: 21ºC
- Beaufort Wind: 4
- Cloud Cover: 20% at start to 80% at end.

3.1.6.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.6.4 Survey Methods

The purpose of this site investigation was to conduct an amphibian calling survey. The survey was conducted in accordance with the protocols of the marsh monitoring program, i.e. 180° degree, 3 minute surveys.

Five survey locations were used, these locations are identified within Figure 1.1.

A copy of the field notes kept by the observers is provided in Appendix A.

3.1.7 Site Investigation 7

3.1.7.1 Date, Time, and Duration of Site Investigation

- Date: June 2, 2011
- Start Time: 0600
- End Time: 0930
- Duration: approximately 3 hours 30 minutes

3.1.7.2 Weather Conditions During Site Investigation

- Temperature: 18ºC
- Beaufort Wind: 3/4
- Cloud Cover: 50%

3.1.7.3 Name and Qualifications of Person Conducting Site Investigation

The site investigation was completed by Caleb Coughlin and Sean K. Male. Qualifications for these individuals have been previously provided.

3.1.7.4 Survey Methods

The purpose of this site visit was to:

- complete Ecological Land Classification (ELC) according to the ELC for Southern Ontario for the woodlands on the Project location. Representative points were selected within the woodland communities; locations are shown in Figure 1.1. ELC data sheets were completed and are provided in Appendix A.
- conduct a breeding bird survey within the woodland community on the southern portion of the Project location. The breeding bird survey consisted of a combination of area searches and point counts. Area searches consisted of running a series of transects through the woodland to document bird species, while point counts consisted of two, 10-minute, unlimited distance point count surveys within the woodland. Locations of transects and point count surveys are shown within Figure 1.1.

3.2 Natural Resource Solutions Inc. Site Investigation

Natural Resource Solutions Inc. (NRSI) conducted a site investigation in order to determine boundaries and evaluate significance of wetland communities.

3.2.1 Site Investigation 1

Names, qualifications and survey methodologies are identified within their report provided in Appendix B.

3.2.1.1 Date, Time, and Duration of Site Investigation

- Date: August 11, 2010
- Start Time: 0830
- End Time: 1630
- Duration: 8 hours

3.2.1.2 Weather Conditions during Site Investigation

- Temperature: 30°C
- Beaufort Wind: 1 (1 to 5.6 km/h)
- Cloud Cover: 5%

3.2.2 Site Investigation 2

Names, qualifications and survey methodologies are identified within their report provided in Appendix B.

3.2.2.1 Date, Time, and Duration of Site Investigation

- Date: August 12, 2010
- Start Time: 0830
- End Time: 1630

- Duration: 8 hours

3.2.2.2 Weather Conditions During Site Investigation

- Temperature: 21°C
- Beaufort Wind: 1
- Cloud Cover: 60%

3.2.3 Site Investigation 3

Names, qualifications and survey methodologies are identified within their report provided in Appendix C.

3.2.3.1 Date, Time, and Duration of Site Investigation

- Date: May 13, 2011
- Start Time: 1145
- End Time: 1430
- Duration: 2 hours 45 minutes

3.2.3.2 Weather Conditions during Site Investigation

- Temperature: 25°C
- Beaufort Wind: 3
- Cloud Cover: 80%

4. Results of Site Investigation

The majority of the Project location is comprised of agricultural lands used for the production of hay. The agricultural fields occur on poorly drained soils and exposed bedrock at the surface was observed along the northern portion of the Project location. The fields were predominantly comprised of grasses, sedges and herb species. A photograph showing a portion of the Project location is provided in Figure 4.1.

Figure 4.1 View of the Agricultural Fields Along the Northeast Boundary of the Project Location

4.1 Vegetation Observations

The vegetation communities identified on the Project location are generally described following the Ecological Land Classification (ELC) System and include woodlands, wetlands, cultural hedgerows and plantations. A complete list of vegetation species observed during the site investigation, including common and scientific names, is found in Table 4.1.

Table 4.1 List of Vegetation Species Observed on the Project Location

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Tree	*Acer rubrum*	Red Maple	G5	S5
Tree	*Acer saccharum ssp. saccharum*	Sugar Maple	G5T5	S5
Tree	*Betula alleghaniensis*	Yellow Birch	G5	S5
Tree	*Betula papyrifera*	White Birch	G5	S5
Tree	*Carya cordiformis*	Bitternut Hickory	G5	S5
Tree	*Fagus grandifolia*	American Beech	G5	S4
Tree	*Fraxinus americana*	White Ash	G5	S5
Tree	*Fraxinus nigra*	Black Ash	G5	S5
Tree	*Fraxinus pennsylvanica*	Green Ash / Red Ash	G5	S5
Tree	*Juniperus virginiana*	Eastern Red Cedar	G5	S5
Tree	*Larix laricina*	Tamarack	G5	S5

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Tree	*Ostrya virginiana*	Ironwood	G5	S5
Tree	*Pinus resinosa*	Red Pine	G5	S5
Tree	*Pinus strobus*	Eastern White Pine	G5	S5
Tree	*Populus grandidentata*	Largetooth Aspen	G5	S5
Tree	*Populus tremuloides*	Trembling Aspen	G5	S5
Tree	*Prunus serotina*	Black Cherry	G5	S5
Tree	*Quercus macrocarpa*	Bur Oak	G5	S5
Tree	*Quercus rubra*	Red Oak	G5	S5
Tree	*Robinia pseudo-acacia*	Black Locust	G5	SNA
Tree	*Tilia americana*	Basswood	G5	S5
Tree	*Ulmus americana*	American Elm	G5?	S5
Tree	*Ulmus thomasii*	Rock Elm	G5	S4?
Shrub	*Alnus incana ssp. rugosa*	Speckled Alder	G5	S5
Shrub	*Cornus alternifolia*	Alternate-leaved Dogwood	G5	S5
Shrub	*Cornus foemina ssp. racemosa*	Grey Dogwood	G5	S5
Shrub	*Cornus stolonifera*	Red-osier Dogwood	G5	S5
Shrub	*Juniperus communis*	Common Juniper	G5	S5
Shrub	*Rhamnus cathartica*	Common Buckthorn	GNR	SNA
Shrub	*Spiraea alba*	Narrow-leaved Meadowsweet	G5	S5
Shrub	*Zanthoxylum americanum*	Prickly-ash	G5	S5
Shrub	*Crataegus sp*	Hawthorn Species	-	-
Shrub	*Rubus sp*	Raspberry Species	-	-
Shrub	*Salix sp*	Willow Species	-	-
Herb	*Achillea millefolium*	Common Yarrow	G5T5?	SNA
Herb	*Actaea rubra*	Red Baneberry	G5	S5
Herb	*Apocynum androsaemifolium*	Spreading Dogbane	G5	S5
Herb	*Aralia nudicaulis*	Wild Sarsaparilla	G5	S5
Herb	*Asarum canadense*	Wild Ginger	G5	S5
Herb	*Asclepias syriaca*	Common Milkweed	G5	S5
Herb	*Chrysanthemum leucanthemum*	Ox-eye Daisy	GNR	SNA
Herb	*Clinopodium vulgare*	Wild Basil	G5	S5
Herb	*Daucus carota*	Wild Carrot	GNR	SNA
Herb	*Epipactis helleborine*	Helleborine	GNR	SNA
Herb	*Erigeron annuus*	Daisy Fleabane	G5	S5
Herb	*Fragaria virginiana*	Common Strawberry	G5	S5
Herb	*Galium triflorum*	Fragrant Bedstraw	G5	S5
Herb	*Hieracium aurantiacum*	Orange Hawkweed	GNR	SNA
Herb	*Hydrocharis morsus-ranae*	Frog's-bit	GNR	SNA
Herb	*Iris versicolor*	Blueflag	G5	S5
Herb	*Linaria vulgaris*	Butter-and-eggs	GNR	SNA
Herb	*Lotus corniculatus*	Bird's-foot Trefoil	GNR	SNA
Herb	*Maianthemum canadense*	Canada Mayflower	G5	S5
Herb	*Maianthemum racemosum*	False Solomon's Seal	G5	S5
Herb	*Medicago lupulina*	Black Medick	GNR	SNA
Herb	*Potentilla recta*	Rough-fruited Cinquefoil	GNR	SNA

Type	Scientific Name	Common Names	Global (GRank)	Provincial (SRank)
Herb	*Prunella vulgaris*	Selfheal / Heal-all	G5T5	S5
Herb	*Ranunculus acris*	Tall Buttercup	G5	SNA
Herb	*Rhus radicans*	Poison Ivy	G5	S5
Herb	*Rudbeckia hirta*	Black-eyed Susan	G5	S5
Herb	*Rumex crispus*	Curly Dock	GNR	SNA
Herb	*Sanguinaria canadensis*	Bloodroot	G5	S5
Herb	*Silene latifolia*	Bladder Campion	GNR	SNA
Herb	*Trifolium agrarium*	Hop Clover	GNR	SNA
Herb	*Trifolium hybridum ssp. elegans*	Alsike Clover	GNR	SNA
Herb	*Trifolium pratense*	Red Clover	GNR	SNA
Herb	*Trifolium repens*	White Clover	GNR	SNA
Herb	*Typha latifolia*	Broad-leaved Cattail	G5	S5
Herb	*Verbascum thapsus*	Common Mullein	GNR	SNA
Herb	*Aster sp*	Aster Species	-	-
Herb	*Solidago sp*	Goldenrod Species	-	-
Vine	*Vicia cracca*	Cow Vetch	GNR	SNA
Woody Vine	*Parthenocissus quinquefolia*	Virginia Creeper	G5	S4?
Woody Vine	*Solanum dulcamara*	Bittersweet Nightshade	GNR	SNA
Woody Vine	*Vitis riparia*	Riverbank Grape	G5	S5
Graminoid	Poacea Family	Grass Species	-	-
Sedge	Cyperaceae Family	Sedge Species	-	-
Sedge	*Carex bebbii*	Bebb's Sedge	G5	S5
Sedge	*Carex intumescens*	Bladder Sedge	G5	S5
Sedge	*Carex viridula*	Greenish Sedge	G5?	S5
Sedge	*Carex vulpinoidea*	Fox Sedge	G5	S5
Sedge	*Eleocharis sp*	Spike-rush Species	-	-
Sedge	*Scirpus cyperinus*	Wool Grass	G5	S5
Sedge	*Scirpus microcarpus*	Small-fruited Bulrush	G5	S5
Rushes	*Juncus sp*	Rush Species	-	-
Fern	*Equisetum arvense*	Field Horsetail	G5	S5
Fern	*Onoclea sensibilis*	Sensitive Fern	G5	S5
Fern	Dryopteridaceae Family	Fern Species	-	-

Acronyms/Definitions

Global

G5 – **Very common** (demonstrably secure under present conditions)
GNR - Denotes that the species does not have a Global Ranking
T – Denotes that the rank applies to a subspecies or variety.

Provincial

S5 – **Secure** (Common, widespread, and abundant in the nation or state/province)
S4 – **Apparently Secure** (Uncommon but not rare; some cause for long-term concern due to declines or other factors)
SNA – **Not Applicable** (A conservation status rank is not applicable because the species is not a suitable target for conservation activities)
NAR – Not at Risk

4.1.1 Cultural Vegetation Communities (CU)

Cultural vegetation communities are described in the ELC system as areas formed as a result of anthropogenic and cultural disturbances. These communities are typically dominated by non-native species. The following cultural communities were identified on the Project location.

Cultural Hedgerows (CUH)

Cultural hedgerow communities are described as linear corridors dominated by shrub and tree species and are common in rural landscapes. These communities are often found along property lines, roadsides and within agricultural fields to separate one piece of land from another. Hedgerow communities not only serve a purpose for farmers (e.g., shelterbelts), but provide wildlife habitat for a variety of species.

There were two different types of cultural hedgerow communities identified on the Project location. These included hedgerows commonly found on agricultural fields to separate one piece of land from another and hedgerows that were planted for ornamental purposes.

The tree and shrub species observed within the hedgerow communities commonly found within the rural landscape include American elm, bur oak, basswood, sugar maple, ash species, common buckthorn, prickly-ash, raspberry sp., and hawthorn species. These hedgerows were generally connected to a larger woodland community.

The ornamental hedgerow areas were found near the homestead and agricultural structures along the northeast portion of the Project location. These included a hedgerow comprised entirely of amur maple and coniferous hedgerows dominated by red pine and red cedar with some white spruce and tamarack observed. The coniferous hedgerows appeared to be planted for ornamental purposes. Although the trees were planted in a row, the large spacing between each of the trees do not provide suitable windbreaks or are characteristic of typical hedgerows used to separate one field from another.

Figure 4.2 View of the Red Pine Hedgerow

Cultural Plantations (CUP)

There were four woodland plantations identified on the Project location: two along the northwest boundary and two within the southern woodland. This included 3 coniferous plantations, 1 dominated by white spruce (CUP3-8), and 2 dominated by red pine (CUP3-1), and a deciduous plantation dominated by black locust (no corresponding ELC code). Location of these features is shown in Figure 1.1.

Conifer plantations were all described as mid-aged communities, with no sub-canopy, understorey or groundcover. The Black Locust plantation was described as a young forest community with sparse sub-canopy and ground cover with no understorey.

4.1.2 Woodland Communities

The Land Information Ontario (LIO) mapping identified woodlands on and within 120 m of the Project location. A general description of these woodlands is provided below.

Woodland 1

The woodland located along the southeast boundary originates as a hedgerow with the western portion exhibiting characteristics of a woodland. The substrate within this woodland appear to be shallow with several large boulders and rock outcrops observed. Although this woodland is small, it is described as a mid-aged Dry-Fresh Poplar Deciduous Forest (FOD3-1). The tree species observed within this woodland include bur oak, American elm, green ash, black ash, largetooth aspen,

basswood, white ash, bitternut hickory, sugar maple, yellow birch, ironwood and black cherry. The shrub species observed included common buckthorn, prickly-ash, white ash, prickly gooseberry, hawthorn sp., willow sp., dogwood sp., and raspberry sp. Groundcover vegetation includes a mix of grasses, sedges, vines, and herb species. The dominant vegetation species observed include blue cohosh, false solomon's seal, Virginia creeper, trillium species, fragrant bedstraw and red baneberry.

Woodland 2

Located along Narrows Lock Rd., between the northern and southern portions of the Project location, this woodland community is consistent with that described or Woodland 1

Woodland 3

This woodland is a large woodland community occurring both on, within 120 m of, and more than 120 m from the Project location. This woodland is composed of several community types, with those on and within 120 m of the Project location described below.

Southern portion of woodland

This portion of the woodland is located along the southern boundary of the Project location and consists of red pine plantation (CUP3-1), white spruce plantation (CUP3-8), and a mixture of immature and mature Dry-Fresh Sugar Maple Deciduous Forest (FOD5-1). Canopy cover was $\geq$80% and downed debris and leaf litter was abundant. The dominant species included sugar maple and American beech with trembling aspen, basswood, American elm, red oak, green ash, white ash, largetooth aspen, ironwood, white birch and yellow birch associates. Shrubs such as gray dogwood, common buckthorn, and prickly-ash were found along the edge of this woodland. The dominant groundcover vegetation observed includes sugar maple saplings, wild sarsaparilla, wild ginger, fragrant bedstraw, starflower and fern species.

Northwest portion of woodland

There were different vegetation communities identified within the woodlands located along the northwest and western boundaries of the Project location. These included cultural plantations (discussed in Section 4.1.1) and deciduous woodland communities.

The deciduous woodland community along the western boundary is described as a mid-aged Dry-Fresh Sugar Maple – Ironwood Deciduous Forest (FOD5-4). The tree species observed included sugar maple, red maple, ironwood, black cherry, American elm, ash species, white birch, largetooth aspen and basswood. Immature white pine and red pine were observed along the edge of the woodland and within the open field area.

4.1.3 Wetland Communities

The Land Information Ontario (LIO) mapping shows two unevaluated wetlands on the Project location, along the north and southwest boundaries. The presence of these wetland communities was confirmed during the site investigation. These wetland communities are described in detail within a separate report, included in this report as Appendix B. Photographs of portions of the wetland communities are shown in Figures 4.3 to 4.6 below.

Figure 4.3 View of a Willow Thicket Swamp within the Southwest Wetland Community (tsS9 on mapping provided in Appendix B)

Figure 4.4 View of a Shallow Marsh Community in the North Wetland (reM20 on mapping provided in Appendix B)

Figure 4.5 View of a Shallow Marsh Community in the Southwest Wetland (reM15 on mapping provided in Appendix B)

Figure 4.6 View of a Shallow Water Community within the Southwest Wetland (fM19 on mapping provided in Appendix B)

4.2 Wildlife Observations

Evidence of wildlife and wildlife species observed on the Project location during the site investigation were recorded and are provided in Table 4.2.

Table 4.2 Wildlife Species Observed During the Site Investigation

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Mammals					
Canis latrans	Coyote	S5			
Procyon lotor	Raccoon	S5			
Erethizon dorsatum	Porcupine	S5			
Castor canadensis	Beaver	S5			
Ondatra zibethicus	Muskrat	S5			
Sciurus carolinensis	Eastern Gray Squirrel	S5			
Tamiasciurus hudsonicus	Red Squirrel	S5			
Odocoileus virginianus	White-tailed Deer	S5			
Tamias striatus	Eastern Chipmunk	S5			
Birds					
Anas discors	Blue-winged Teal	S4			
Anas platyrhynchos	Mallard	S5			
Aix sponsa	Wood Duck	S5			
Branta canadensis	Canada Goose	S5			
Ardea herodias	Great Blue Heron	S4			
Botaurus lentiginosus	American Bittern	S4B			
Porzana Carolina	Sora	S4B			
Gallinago gallinago	Common Snipe	S5B			
Charadrius vociferous	Killdeer	S5B			
Bonasa umbellus	Ruffed Grouse	S5			
Meleagris gallopavo	Wild Turkey	S5			
Cathartes aura	Turkey Vulture	S5B			
Buteo jamaicensis	Red-tailed Hawk	S5			
Circus cyaneus	Northern Harrier	S4B	NAR		Yes
Malleagris gallopavo	Wild Turkey	S5			
Picoides pubescencs	Downy Woodpecker	S5			
Sphyrapicus carious	Yellow-bellied Sapsucker	S5B			
Dryocopus pileatus	Pileated Woodpecker	S5			Yes
Colaptes auratus	Northern Flicker	S4B		Yes	
Sitta carolinensis	White-breasted Nuthatch	S5			Yes
Corvus brachyrhynchos	American Crow	S5			
Cyanocitta cristata	Blue Jay	S5			
Zenaida macroura	Mourning Dove	S5			

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Archilochus colubris	Ruby-throated Hummingbird	S5B			
Hirundo rustica	Barn Swallow	S4B			
Tachycineta bicolor	Tree Swallow	S4B			
Vireo olivaceus	Red-eyed Vireo	S5B			
Vireo gilvus	Warbling Vireo	S5B			
Contopus virens	Eastern Wood-Pewee	S4B		Yes	
Sayornis phoebe	Eastern Phoebe	S5B			
Empidonax traillii	Willow Flycatcher	S5B			
Myiarchus crinitus	Great Crested Flycatcher	S4B			
Poecile atricapillus	Black-capped Chickadee	S5			
Turdus migratorius	American Robin	S5B			
Toxostoma rufum	Brown Thrasher	S5B		Yes	
Dumetella carolinensis	Gray Catbird	S4B			
Hylocichla mustelina	Wood Thrush	S5B			
Catharus fuscescens	Veery	S5B			Yes
Setophaga ruticilla	American Redstart	S5B			Yes
Dendroica petechia	Yellow Warbler	S5B			
Mniotilta varia	Black-and-white Warbler	S5B			Yes
Dendroica pensulvanica	Chestnut-sided Warbler	S5B			
Vermivora peregrina	Tennessee Warbler	S5B			
Dendroica coronata	Yellow-rumped Warbler	S5B			
Seiurus aurocapilla	Ovenbird	S5B			Yes
Dendroica fusca	Blackburnian Warbler	S5B			Yes
Dendroica magnolia	Magnolia Warbler	S5B			Yes
Geothlypis trichas	Common Yellowthroat	S5B			
Carduelis tristis	American Goldfinch	S5B			
Pheucticus ludovicianus	Rose-breasted Grosbeak	S4B			
Agelaius phoeniceus	Red-winged Blackbird	S4			
Icterus galbula	Baltimore Oriole	S5B		Yes	
Quiscalus quiscula	Common Grackle	S5B			
Sturnus vulgaris	European Starling	SE			
Sturnella magna	Eastern Meadowlark	S5B		Yes	
Spizella passerine	Chipping Sparrow	S5B			
Spizella pusilla	Field Sparrow	S5B		Yes	
Passerculus sandwichensis	Savannah Sparrow	S4B			Yes
Melospiza melodia	Song Sparrow	S5B			

Scientific Name	Common Name	Provincial (SRank)	COSSARO	Declining Species	Area-Sensitive Species
Melospiza georgiana	Swamp Sparrow	S5B			
Amphibians					
Bufo americanus	American Toad	S5			
Rana pipiens	Northern Leopard Frog	S5	NAR		
Rana clamitans	Green Frog	S5			
Hyla versicolor	Gray Tree Frog	S5			
Reptiles					
Chrysemys picta bellii	Midland Painted Turtle	S5			
Thamnophis sirtalis	Eastern Garter Snake	S5			
Nerodia sipedon sipedon	Common Water Snake	S5	NAR		
Insects					
Danaus plexippus	Monarch	S2N,S4B	SC		

Acronyms/Definitions

Global
G5 – **Very common** (demonstrably secure under present conditions)
Provincial
S5 – **Secure** (Common, widespread, and abundant in the nation or state/province)
S4 – **Apparently Secure** (Uncommon but not rare; some cause for long-term concern due to declines or other factors)
B - Denotes that the ranking applies to Breeding
NAR – Not at Risk

4.2.1 Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (SWHTG) (MNR, 2000) identifies four main types of wildlife habitat that can be classified as significant:

- habitat for seasonal concentrations of animals
- rare or specialized habitats for wildlife
- habitat for species of conservation concern
- wildlife movement corridors.

Each of these types of wildlife habitat is considered further below and how they were considered during the site investigations.

4.2.1.1 Habitats of Seasonal Concentrations of Animals

There are many different kinds of seasonal concentration areas, with the likelihood of occurrence of one of these areas depending on the characteristics of the study location. Those that were considered during the site investigations, and the discussion of their potential occurrence on the Project location, are discussed below.

- Winter deer yards – Winter deer yards are sheltered areas where white-tailed deer congregate during the winter months. As white-tailed deer are not adept at moving through deep snow, a key component of a winter deer yard is a core area predominantly composed of coniferous trees with a 60% canopy cover. The Ecoregion Criteria document identifies several ELC codes for which winter deer yards may be associated, of which only one was recorded on or within 120 m of the Project location (CUP – Cultural Coniferous Plantation). The locations of the plantations are shown within Figure 1.1. Plantation communities have been described further within Section 4.1.1. Plantation communities were described as mid-aged with >60% canopy cover. Though abundant vegetation available for browse is found within the area, no evidence of deer browse was noted within this feature. The Township of Tay Valley, which overlaps the Project location, has identified significant wildlife habitats, including deer wintering yards; no significant wildlife habitats are identified on or within 120 m of the Project location on Schedule A2 of the Official Plan. In addition, consultation with the public did not identify presence of a known deer yard within the woodlands on or within 120 m of the Project location. Based on the known occurrence of other significant winter deer yards within the area, the small size of the conifer plantations, and the absence of use of candidate habitats, this location does not meet the requirements of a candidate significant winter deer yard.
- Moose late winter habitat – The study area is outside of the core range of moose, and therefore this habitat type cannot be found on or within 120 m of the Project location.
- Colonial bird nesting sites – Colonial bird nesting sites are locations where colonial species, such as herons, gulls, terns, and swallows traditionally nest in colonies of varying size. Great Blue Heron and American Bittern were recorded during the site investigation. Great Blue Heron nest in colonies, typically in tall snags in open water areas or on island communities offering protection from predation. No heronries were observed during area searches of lands on and within 120 m of the Project location. A single calling male American Bittern were recorded within the large marshland located within 120 m north of the Project location during both 2010 and 2011 site investigations. No American Bittern nest was identified during area searches of the wetland community, and no other American Bitterns were recorded. Therefore, though a colonial species was recorded, there is no evidence to support colonial breeding within the wetland community. No other colonial nesting species, such as terns or herons, were observed during surveys of the wetland communities, and the marshland was determined to not provide suitable habitat for colonial nesting terns. No suitable gull or tern colony locations (islands or peninsulas within Otter Creek) were noted on or within 120 m during area searches along the river. Potential swallow colonial breeding locations such as eroding banks, sandy hills, pits, steep slopes, rock faces or piles were not recorded during area searches on or within 120 m of the Project location.
- Waterfowl stopover and staging areas – Waterfowl traditionally congregate in larger wetlands, complexes of smaller wetlands in close proximity to one another, and relatively undisturbed shorelines with vegetation during spring and fall migration. Further, during the fall migration, waterfowl may commonly congregate in feeding or roosting ponds. Though a complex of smaller wetland communities is found within 120 m of the Project location, communities were not found to contain large areas of open water capable of supporting significant numbers of migratory waterfowl. In addition, the presence of large lakes and waterbodies with shoreline

wetland complexes within the larger area around the Project location make the wetlands on and within 120 m of the Project location unlikely to be used by migratory waterfowl. As a result, though a complex of smaller wetland communities has been identified, the relatively low importance of this community and habitat characteristics indicate that it would not be suitable candidate significant waterfowl stopover and staging habitat.

- Waterfowl nesting – Waterfowl nesting sites can consist of relatively large, undisturbed upland areas with abundant ponds and wetlands, while other species nest within tree cavities in swamps or on the shorelines of waterbodies. Wood Duck, Canada Goose, and Mallard were recorded during the site investigation. No waterfowl nests or evidence of waterfowl nesting (e.g., alarm behaviour) was recorded during the site investigation. No areas of suitable habitat for Wood Duck nesting, i.e. forest with mature cavity trees, were identified on or within 120 m of the Project location. Nesting of Mallard and Canada Geese would be occurring within the hayfields adjacent to the wetland communities; however, area searches of these features failed to detect waterfowl nests, and no alarm behaviour from waterfowl was observed that would suggest nesting was occurring.
- Shorebird migratory stopover areas – Shorebird migratory stopover areas are found along the shorelines of the Great Lakes and James Bay, as the Project location is located more than 120 m away from these areas, this habitat type cannot occur on the Project location.
- Landbird migratory stopover areas – Landbird stopover areas are found along the shorelines of the Great Lakes and contain a variety of habitat types from open fields to large woodlands. As the Project location is located greater than 120 m away from these areas, this habitat type cannot occur on the Project location.
- Raptor winter feeding and roosting areas – This combined habitat type features suitable raptor roosting sites in proximity to winter feeding areas. For most raptor species, roosting sites are traditionally mature mixed or coniferous woodlands, a habitat type which is found associated with the conifer plantations in the northwestern and southern portions of the Project location. This habitat type will be evaluated for significance.
- Wild turkey winter range – Similar to winter deer yards, wild turkey rely on coniferous forest stands for winter protection. Such habitat is found associated with the pine plantations in the northwestern and southern portions of the Project location, however no seepage areas or areas that would provide open water during the winter were identified during the site investigation, which is an essential component of wild turkey winter habitat. As a result, this area does not meet the criteria of candidate significant wildlife habitat.
- Turkey Vulture summer roosting areas – Turkey vulture summer roosting areas traditionally consist of cliff ledges and large snags. No cliff ledges were noted during the site investigation, and there were few large dead or partially dead trees present within the area. Further, the dead trees that were observed on or within 120 m of the Project location did not show signs of white-washing, which would indicate occurrence of a Turkey Vulture summer roost. While a Turkey Vulture was recorded during the site investigations, it was noted foraging over the area and roosting behaviour was not detected. Foraging Turkey Vultures are a common observation

within southern Ontario during this time of year. As a result, this habitat type is not identified within 120 m of the Project location.

- Reptile hibernacula – Reptile hibernacula are commonly found in animal burrows and rock crevices. A fox den, bedrock fissures, and old fencerows were observed during the site investigation. The fencerow communities were generally too small to provide sufficient protection from frost. Though the fox den and bedrock fissures may provide sufficient frost protection, transect surveys of lands on and within 120 m of the Project location, as previously described in Section 3.1.3 and 3.2.3 did not detect occurrences of any snakes on or within 120 m of the Project location. Therefore, though these features may provide suitable habitat characteristics, the features are not presently in use. Therefore, there are no candidate significant reptile hibernacula found on or within 120 m of the Project location.
- Bat hibernacula – Bat hibernacula are found in caves, abandoned mines, or areas with karst habitat. These features were not identified on or within 120 m of the Project location during the site investigation. Further, the Project location is also not within an area of known karst habitat (Brunton and Dodge, 2008).
- Bullfrog concentration areas – Bullfrog concentration areas are predominantly found in areas of marsh habitat. Marsh habitat was recorded on and within 120 m of the Project location, however no bullfrogs were heard calling during amphibian surveys conducted at suitable times of year for detection (see Sections 3.1.4 and 3.1.6 for details of survey methodology). Further, no bullfrogs were observed during area searches of the wetland community. In addition, there is an overall absence of deep water areas within the marsh community; deep water areas are necessary for the support of bullfrog concentration areas. As a result, suitable habitat is not present on or within 120 m of the Project location.

Therefore, only one candidate significant wildlife habitat were identified on or within 120 m of the Project location, raptor winter feeding and roosting areas.

4.2.1.2 Rare Vegetation Communities or Specialized Habitat for Wildlife

Rare vegetation communities include alvars, tall-grass prairies, savannahs, rare forest types, talus slopes, rock barrens, sand barrens and Great Lakes dunes. None of these vegetation communities were identified during the site investigation. Vegetation communities that were observed during the site investigation have been previously described in Section 4.1; none of these communities are considered to be rare or uncommon within the local or provincial area.

Specialized wildlife habitats include

- areas that support species that have highly specific habitat requirements
- areas with high species and community diversity
- areas that provide habitat that greatly enhances species survival.

There are many habitat types that may meet these definitions; those that were considered during the site investigations as they had the potential to be present in the area, and the discussion of their potential occurrence on the Project location, are addressed below:

- Habitat for area-sensitive species – Appendix C of the SWHTG lists area-sensitive species. Of these species, several were recorded during the site investigation, Northern Harrier (*Circus cyaneus*), White-breasted Nuthatch (*Sitta carolinensis*), Pileated Woodpecker (*Dryocopus pileatus*), American Bittern (*Botaurus lentiginosus*), Veery (*Catharus fuscescens*), American Redstart (*Setophaga ruticilla*), Black-and-white Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapilla*), Blackburnian Warbler (*Dendroica fusca*), Magnolia Warbler (*Dendroica magnolia*), and Savannah Sparrow (*Passerculus sandwichensis*). These species are discussed below. None of the other area-sensitive species identified from the Records Review were recorded during area searches of available habitats completed in association with the site investigations.
    - Northern Harrier/Savannah Sparrow – Suitable habitat is found on the agricultural grasslands present on and within 120 m of the Project location, and the observation consisted of an individual foraging over the agricultural fields
    - White-breasted Nuthatch/Pileated Woodpecker/Blackburnian Warbler – White-breasted Nuthatch and Pileated Woodpecker were recorded from a woodland community within 120 m west of the Project location. Portions of the woodland community more than 120 m from the Project location have been identified as containing old-growth forest necessary to support populations of these species
    - American Bittern – American Bittern were observed calling from the marshland community within 120 m of the Project location.
    - Black-and-white Warbler/Ovenbird/Magnolia Warbler/American Redstart – These species were recorded from the woodland community on the Project location. Ovenbird were common throughout the woodland community, Black-and-white Warbler were recorded along the edge of the pine plantation, an American Redstart was recorded at the southern end of the woodland, and a single Magnolia Warbler was recorded within the extreme southwestern edge of the Project location
    - Veery – Veery were recorded from portions of the woodland community around the wetland within 120 m of the Project location. 3 Veery were observed calling, 1 from a portion of woodland on the Project location, and 2 from areas of woodland more than 120 m from the Project location.
- Forests providing a high diversity of habitats – Characteristics of forest communities on and within 120 m of the Project location are discussed further below. Based on these characteristics, it is determined that the woodland communities on and within 120 m of the Project location provide a high diversity of habitats given that they encompass a watercourse and a wetland, and contains an area of mature forest.
    - The woodlands were described as having several forest communities. Pine, spruce and locust plantations were all identified on or within 120 m of the Project location, while deciduous forest communities were also recorded. A diversity of shrub species was not recorded in the communities, and ground cover was considered to be generally sparse in most communities. No rare species were noted.

  - Woodlands on and within 120 m of the Project location were identified as predominantly mid-aged, though an area of mature forest community is present within the woodland south of the Project loction.
  - No cavity trees were observed within the mature forest community on or within 120 m of the Project location.
  - A watercourse and associated wetland community occurs between portions of the woodland communities.
  - Soil conditions on the Project location were predominantly identified as sandy to sandy loam.
  - There is no known history of forest management from these woodlands. No evidence of logging activities from within the woodlands was noted.

- Old-growth or mature forest stands – An old growth forest stand is identified within the woodland located more than 120 m from the Project location southeast of Scotch Line (MNR, 2010). Portions of the woodland on the southern portion of the Project location were identified as containing a mature forest community (see Section 4.1.2). Other woodlands on the Project location were not identified as having old growth or mature characteristics, and were generally characterized as young to mid-aged (see Section 4.1.2). As a result, this habitat type is found on and within 120 m of the Project location.
- Foraging areas with abundant mast – This habitat type is found within Ecoregion 6E only in relation to foraging areas with abundant mast present on the Bruce Peninsula (EcoDistrict 6E-14). As the Project location is more than 120 m from this area, within EcoDistrict 6E-11 (MNR, 2009). As a result, this habitat type is not found on the Project location.
- Woodlands supporting amphibian breeding ponds – In addition to the large areas of wetland communities found present within 120 m of the Project location, two vernal pools were noted within the southern woodland on the Project location. These features are considered to be a candidate significant wildlife habitat.
- Turtle nesting habitat – Turtle nesting sites are areas where soft substrates, such as sand or fine gravel, are found that permit turtles to excavate their nests, and are located in open, sunny areas. Such substrate was not recorded on or within 120 m of the Project location during the site investigation, with the exception of road surfaces, which do not meet the requirements for consideration as candidate significant wildlife habitat.
- Specialized raptor nesting habitat – Northern Harrier and Red-tailed Hawk were recorded during the site investigation, however no evidence of raptor nesting (stick nests) were observed. A red-tailed Hawk was observed displaying alarm behaviour over the woodland on the southern portion of the Project location, however a thorough search of the woodland prior to leaf out did not identify any occurrences of suitable stick nests. Further, Red-tailed Hawk are not a species that is identified as contributing to specialized raptor nesting habitat (MNR, 2009). Therefore, specialized raptor nesting habitat were not identified on or within 120 m of the Project location.

- Mink, otter, marten, and fisher denning sites – Denning sites for these members of the weasel family were not recorded on or within 120 m of the Project location during the site investigation.
- Moose calving areas/aquatic feeding areas/mineral licks – The Project location is situated outside of the core range for moose, and therefore this area does not meet the criteria for candidate significant wildlife habitat.
- Highly diverse areas – The habitats present on and within 120 m of the Project location were considered in respect of diversity. The Project location is situated in the Frontenac axis, an area that is identified as having high diversity. Characteristics of the areas are described further below in relation to highly diverse areas. Based on the diverse community types and species diversity on and within 120 m of the Project location, this habitat feature is identified.
    - Natural community diversity – Woodlands, wetlands, and agricultural fields were recorded on and within 120 m of the Project location. Several woodland and wetland community types were identified.
    - Species diversity – Though a complete species inventory of the various communities was not completed, given that many of the communities extend several hundred meters beyond 120 m from the Project location, a diversity of species within the communities within 120 m of the Project location was noted, with up to 12 tree species recorded within the individual woodland communities on and within 120 m of the Project location. This represents a high level of diversity within a woodland community.
    - Presence of rare species – No rare species were noted during the site investigation.
    - Size of site – The Project location is situated on a portion of a 78 ha parcel of land.
- Cliffs and caves – These features were not identified on or within 120 m of the Project location during the site investigation.
- Seeps and springs – No seeps or springs were identified in the vicinity of the Project location during the site investigation (see Hatch Ltd., 2010b).

As a result, habitat for area-sensitive species (Northern Harrier, White-breasted Nuthatch, Pileated Woodpecker, American Bittern, Black-and-white Warbler, Ovenbird, Magnolia Warbler and Savannah Sparrow), forest providing a high diversity of habitats, highly diverse areas, old growth or mature forest stands, woodlands supporting amphibian breeding ponds are considered to be candidate significant specialized habitats for wildlife on or within 120 m of the Project location.

4.2.1.3 Habitat of Species of Conservation Concern

Species of conservation concern that were considered during the site investigation include the following:

- Olive-sided Flycatcher – Suitable breeding habitat, natural or man-made opening featuring tall trees for perching, were not recorded on or within 120 m of the Project location. Though open areas are present associated with the agricultural fields, these areas do not contain tall live trees to provide foraging perches for the species. Further, no Olive-sided Flycatchers were recorded during the breeding bird survey conducted in June 2011 (see Section 3.1.7 for details).

- Common Nighthawk – There is very little bare ground present on or within 120 m of the Project location, with locations of bare ground restricted to field entrances. These areas were searched during the site investigations in the breeding season and no Common Nighthawk were observed. Further, during the crepuscular survey conducted during the breeding season in association with Site Investigation 6, no Common Nighthawk were observed. As a result, of the limited amount of suitable nesting habitat in non-ideal (i.e., roadside) areas, and the absence of observations during the breeding season, it is determined that Common Nighthawk do not breed on or within 120 m of the Project location.
- Golden-winged Warbler/Black-billed Cuckoo – Though a limited amount of suitable breeding habitat was identified on the Project location, extensive area searching of this habitat during the breeding season failed to identify any presence of these species. Therefore, suitable habitat for this species is not found on or within 120 m of the Project location.
- Eastern Meadowlark/Field Sparrow – Though grassland habitats were present on the Project location in 2010, these species were not detected. During the site investigations in 2011, grassland habitats were no longer present on the Project location, however they remained present within 120 m of the Project location. Eastern Meadowlark and Field Sparrows were recorded from the fields within 120 m east of the Project location during site investigations in 2011.
- Canada Warbler – Suitable habitat, interior mixedwood forests with closed canopy and shrubby undergrowth, was not identified on or within 120 m of the Project location.
- American Kestrel/ Eastern Kingbird Black-billed Cuckoo/Belted Kingfisher – Though suitable habitat was identified on or within 120 m of the Project location, these species were not recorded during area searches completed in the breeding season in 2010, or during ongoing site investigations in 2011. Therefore, suitable habitat is not found on or within 120 m of the Project location.
- Northern Flicker – Northern Flicker were recorded calling from the hedgerows within the agricultural fields within 120 m east of the Project location. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Eastern Wood-Pewee – Eastern Wood-Pewee were recorded within the woodland on the southern end of the Project location. Therefore, suitable breeding habitat is found on the Project location.
- Brown Thrasher – A Brown Thrasher was observed within a small area of scrubland at the edge of the southern woodland community on the Project location. Therefore, confirmed habitat for this species is found on the Project location.
- Eastern Towhee – Suitable habitat, dense brushy cover with leaf litter, abandoned fields or pastures with developing young trees or shrubs, and woodland edges with dense undergrowth, were not recorded on or within 120 m of the Project location.
- Vesper Sparrow - Suitable habitat, areas with dry, short-grass with scattered shrubs and small trees, were not identified on or within 120 m of the Project location.

- Savannah Sparrow – Savannah Sparrow were recorded breeding within the grasslands on and within 120 m of the Project location during area searches of suitable habitat in 2010.
- Grasshopper Sparrow – Suitable habitat, well-drained grassland or prairie with low cover of grasses and taller weeds on sandy soil, were not identified on or within 120 m of the Project location.
- Baltimore Oriole – Baltimore Oriole were recorded calling from the hedgerows within the agricultural fields within 120 m east of the Project location. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Milksnake – As Milksnake are habitat generalists, suitable habitat is present on and within 120 m of the Project location. Though they were not detected during the site investigation, it is assumed that they are present.
- Eastern Ribbonsnake – Waterbodies of the Project location represent suitable habitat for Eastern Ribbonsnake. Though they were not detected during the site investigation, it is assumed that they are present.
- Five-lined Skink – Areas of suitable habitat (woodlands with rocky outcrops near permanent bodies of water) were not found on or within 120 m of the Project location. Further, Five-lined Skink were not recorded; as a result, suitable habitat is not present.
- Western Chorus Frog – Western Chorus Frogs were recorded calling from the wetlands within 120 m of the Project location during amphibian surveys conducted in association with Site Investigation 4. Chorus Frogs were recorded at Stations 2 and 5, as shown in Figure 1.1. Therefore, suitable breeding habitat is found within 120 m of the Project location.
- Northern Map/Snapping Turtle – Though it was determined that suitable nesting habitat is limited on and within 120 m of the Project location (see Section 4.2.1.2), turtle species may be found within the waterbodies and wetlands present on and within 120 m of the Project location. As a result, candidate significant wildlife habitat for Northern Map Turtle and Snapping Turtle will be considered.
- Monarch – A monarch butterfly was recorded during the site investigation in 2010. Milkweed, an important associate species for Monarch for egg-laying was commonly observed in waste areas at the edges of the Project location and within 120 m of the Project location.

Based on the results of the site investigation, potential habitat for Eastern Wood-Pewee, Brown Thrasher, Savannah Sparrow, Eastern Meadowlark, Field Sparrow, Northern Flicker, Baltimore Oriole, Western Chorus Frog, Milksnake, Eastern Ribbon Snake, Northern Map Turtle, Snapping Turtle and Monarch will be considered during the evaluation of significance.

4.2.1.4 Animal Movement Corridors

The SWHTG (MNR, 2000) defines animal movement corridors as “elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another”. Animal movement corridors were considered during the site investigation. Such features were found to be present within the hedgerows, wetlands, and woodlands on and within 120 m of the Project location.

These features will be further assessed in the Evaluation of Significance report.

5. Conclusions

Based on the results of the site investigation, there are some minor changes to the Records Review report required based on extensions of wetland communities within the area. In addition, several candidate significant wildlife habitats have been identified that were previously unrecorded.

The following natural features are present on and within 120 m of the Project location and will require an Evaluation of Significance in order to determine whether an Environmental Impact Study is required:

- wildlife habitat, specifically
  - raptor winter feeding and roosting
  - habitat for area sensitive species (Northern Harrier, American Bittern, White-breasted Nuthatch, Pileated Woodpecker, Veery, Black-and-white Warbler, Ovenbird, Magnolia Warbler and Savannah Sparrow)
  - old growth or mature forest stands
  - highly diverse areas
  - forest providing a high diversity of habitat
  - woodlands supporting amphibian breeding pond
  - habitat for species of conservation concern (Eastern Wood-Pewee, Brown Thrasher, Savannah Sparrow, Eastern Meadowlark, Field Sparrow, Northern Flicker, Baltimore Oriole, Western Chorus Frog, Milksnake, Eastern Ribbonsnake, Northern Map Turtle, Snapping Turtle, Monarch)
  - animal movement corridors
- wetlands
- woodlands.

6. References

Brunton, F.R. and J.E.P. Dodge. 2008. Karst map of Southern Ontario, including Manitoulin Island; Ontario Geological Survey, Groundwater Resource Study 5.

COSEWIC. 2005. COSEWIC Assessment and Update Status Report on the Blanding's Turtle *Emydoidea blandingii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. Available on-line at www.sararegistry.gc.ca/status/status_e.cfm.

COSEWIC. 2002a. COSEWIC Assessment and Status Report on the Stinkpot *Sternotherus odoratus*. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 18 pp.

COSEWIC. 2004. COSEWIC Assessment and Status Report on the Spotted Turtle *Clemmys guttata* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

Hatch Ltd. 2010. North Burgess Solar Project – Natural Heritage Records Review. Prepared for Northland Power Inc. on behalf of Northland Power Solar North Burgess L.P. August 2010.

Ministry of Natural Resources (MNR). 2010. Personal communication from H. Zurbrigg (MNR Kemptville) with S. Male (Hatch) during a meeting on September 17, 2010.

Appendix A

Site Investigation Field Notes

Woodlot Located in Center of Farm.

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess		POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Large toothed Aspen, Basswood, Black Cherry
2	SUB-CANOPY	3	3	Buckthorn, White Ash
3	UNDERSTOREY			
4	GRD. LAYER	7	4	Grasses.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy - loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: unk		(cm)

COMMUNITY CLASSIFICATION: ELC CODE

COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD3-1

North End / Eglund western Field.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess - 2 | POLYGON:

SURVEYOR(S): Caleb + Sean | DATE: June 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR			G SAVANNAH
G BEDROCK		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	3	Locust - Black, Bucktheen
2	SUB-CANOPY	4	1	Bucktheen, Black Locust
3	UNDERSTOREY			
4	GRD. LAYER	5	1	Raspberry - Purple + Red, Golden Rod, Virginia Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 6 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50
STANDING 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

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

South End of Western Field

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Bwoss - 3 | POLYGON:

SURVEYOR(S): Caleb + Sea | DATE: Jun 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND	G OPEN	G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND	G SHRUB	G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF	G TREES	G DECIDUOUS	G BOG
G BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	Hard Maple, Ironwood, Black Cherry
2	SUB-CANOPY	4	3	Hard Maple, Ironwood.
3	UNDERSTOREY			
4	GRD. LAYER	7	3	Grasses, Horsetail, Sugarcane Moss.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 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

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1cm		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 15		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:
POLYGON:
DATE:
SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FODS-4

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - South Woodlot	POLYGON:	
SURVEYOR(S):	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Hard maple, White Birch, Yellow Birch, Beech
2	SUB-CANOPY	2	3	Ironwood, Hard maple.
3	UNDERSTOREY			
4	GRD. LAYER	7	1	Ferns, moss.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	O	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy-Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry-fresh	DEPTH OF ORGANICS: 3-4		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown.		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR:

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD 5-1

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Spruce Plantation	POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	White Spruce.
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	A	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	R	< 10	N	10 - 24	N	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CUP3-8

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Red Pine Plant	POLYGON:	
SURVEYOR(S): Caleb + Sam.	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR	G TREED		G SAVANNAH
G BEDROCK		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Red Pine
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	N	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	V	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CWP3-1

Location – Narrows Lock Rd, CR 14
Tay Township
Project: North Burgess

Date: June 23, 2010
Time: 0830 – 1730 (9.0 hrs)
% C.C: 100% overcast morning / 70% afternoon sunny
Beaufort Wind Scale: 2
Temp: 22°C
Observers: Martine Esraelian
Caleb Coughlin

Several Bobolink ♀♂
red-winged blackbird
common grackle
northern Flicker
common snipe
tree swallow
Savannah sparrow
northern harrier
great-crested flycatcher
mallard
great blue heron

porcupine
chipmunk
american toad
rose breasted grosbeak
eastern phoebe

SW Field

Low-lying poor drainage
sedges (A)
small-fruited bulrush
Joe [illegible]
tall buttercup
red clover
cow vetch
common milkweed
field horsetail
spikerush
bird's-foot trefoil
[illegible]
grasses
[illegible]
self heal/heal-all
white clover
bedstraw
[illegible]
teasel
yarrow
orange hawkweed
fox sedge
bebb's sedge
hop clover
rough-fruited cinquefoil

curly dock
wild basil
poison ivy

No
Date Page

Hedgerow / Scrub / small wooded area (SW of property, east of large woodland
Red oak
Bur oak
common Buckthorn (A)
riverbank grape (A)
Eastern red cedar (on tree)
bittersweet nightshade
prickly ash (A)
black-eyed Susan (A)
goldenrod sp. (A)
American Elm (A)
virginia creeper

No
Date Page

Wooded Area 90% CVR
Black Ash
Largetooth Aspen
Basswood (A)
Elm
poison ivy laying on basswood tree
Black Cherry (A)
White Ash
dogwood
hawthorn
Bitternut hickory (A)
rock pile, exposed bedrock, hollow
prickly ash
prickly gooseberry
ash sapling
bloodroot
virginia creeper
buckthorn
Solomon seal
sweet cicely
blue cohosh
white snakeroot (A)
grass, sedges
ironwood
bladder sedge
greenish sedge

No .... Date .... Page........

Bitternut Hickory 48½ DBH

Basswood, 32 + 47 DBH, 28 DBH, 28½

Bitternut Hickory 29½ DBH

Trembling Aspen - 48, 48½

Black Cherry, 28½, 33½

yellow birch ferns

fragrant bedstraw spreading dogbane

false solomons seal

canada mayflower

raspberry sp.

connected to woodland

Scrub area North of small wooded area

adjacent to wetland - prickly ash (A) & grape

hawthorn

dogwood

Trembling aspen

buckthorn (A)

Sugar maple (A)

Elm (D)

Ash

Bitternut hickory

Basswood

Black cherry

Willow sp.

red baneberry

hickory sapling

No .... Date .... Page........

Leopard Frog calling

Wetland extends onto field NE of small woodland

very poor drainage

sedges, grasses, rushes (D)

+ Willow sp.

+ small pockets of open water in drought

Field area near barn

- exposed bed coyote scat

butter & eggs / Toadflax

cow vetch

grasses

raspberry sp.

common milkweed

Rock elm

bedstraw

white elm

bladder campion

shrubs

riverbank grape

common mullein

black cherry

tall buttercup

No ....
Date .... Page..........

Chipmunk

cont'd from other page

"fill" piles of (loose) rocks within scrub area / hedgerows + exposed bedrock

- prickly ash
- yarrow
- wild carrot

Sparse coniferous area near barn

- red cedar (D)
- red pine hedgerow
- larch/tamarack sp.
- spruce

[illegible]

reindeer lichen

No ....
Date .... Page..........

NC Field Fenceline

- sumac (D)
- elm
- Ash
- buckthorn
- grey dogwood (A)
- alternate-leaved dogwood ?
- Black cherry

Thicket Swamp

- Grey dogwood
- narrow-leaved meadowsweet
- speckled alder
- red pine
- black medick clumps
- exposed bedrock
- Bur oak
- sweet gale ?
- blue flag (R)

ringed blue heron

turkey vulture

leopard frog

No
Date ... Page

Ash
prickly-ash
Shrub sp.
Bur oak
Sugar maple
Buckthorn
Rock elm
hawthorn
basswood

Hedgerow
~ Amur maple

wetland area
yellow-throated warbler
grackle
white pine

No
Date ... Page

western-most Field

Shrubland
– prickly-ash
Elm
Sugar Maple
grey dogwood?
Black Locust (D) Plantation?
common juniper
Ash
white pine sapling
narrow-leaved meadowsweet

white pine sapling
willow
red pine sapling

goldenrod sp.

structure
[illegible] along
edge of woodland

Wet Woodland (adjacent to [illegible])
Sugar maple (D)
Red Maple [illegible]
Elm sweet gale?
Green ash
black locust
Red pine
White pine (D)
White Ash
buckthorn –
white birch (R)
Largetooth Aspen + possible shagbark
Basswood
coniferous [illegible] along edge of field (woodland)

No
Date Page

South Woodlot

groundcover - Sparse CVR - 80%

Trembling Aspen — wood strawberry
Sugar maple
Buckthorn — American toad
Grey dogwood
Green ash
Basswood
Prickly-ash (D) understory
Nannyberry
White pine
Ironwood
10-24 DBH (D)
<10 (A)
downed debris (A)
leaf litter (A)
Red oak
American Beech
Elm
Largetooth Aspen
wild ginger
fragrant bedstraw
Starflower?
wild sarsaparilla

No
Date Page

Sugar maple (D)
yellow birch (D)
American beech (D)
Ironwood
white ash
groundcover
- ferns
- sugar maple saplings

Point Count Data Form

Observer: S/LV	Site: NB Loads	Date: June 2 '11
Station ID: PC01	Visit #: 1	Start Time (HH:MM): 07:06
Beaufort Wind Scale: B3-4	Cloud Cover (%): 75	Temperature (°C): 18
Precipitation: —	Visibility: Clear	
Remarks:		

Aerial Foragers	
Species	Tally

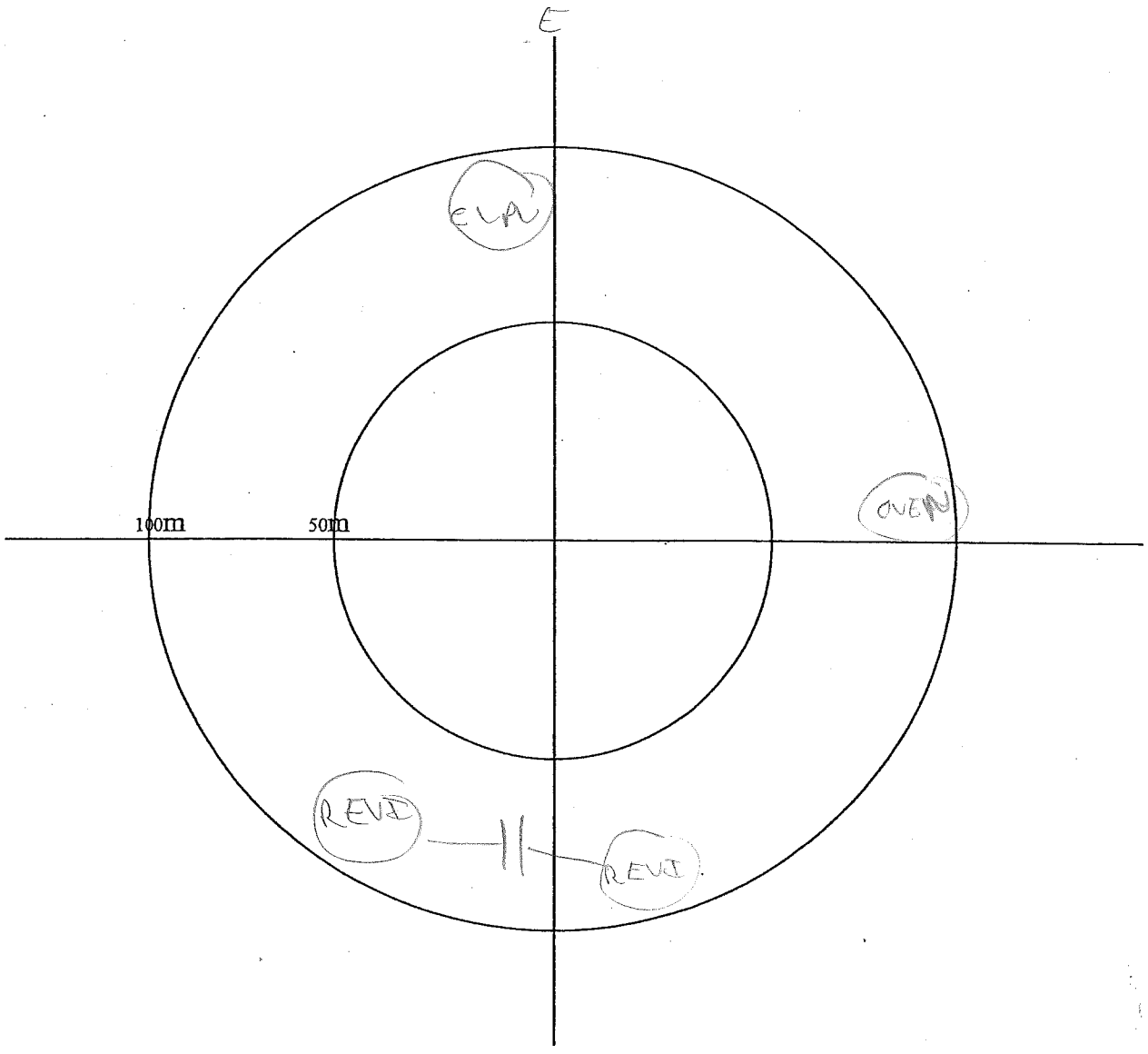
Symbols

- RWBL — Single bird, singing/calling
- RWBL + RWBL — Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - Close to TH
3 - V BS
4 - WABS

Outside/Flythru
EWPW
OVEN
AMCR



Point Count Data Form

Observer:	Site:	Date:
Station ID: PCO7	Visit #:	Start Time (HH:MM): 07:45
Beaufort Wind Scale:	Cloud Cover (%):	Temperature (°C):
Precipitation:	Visibility:	
Remarks:		

Aerial Foragers	
Species	Tally

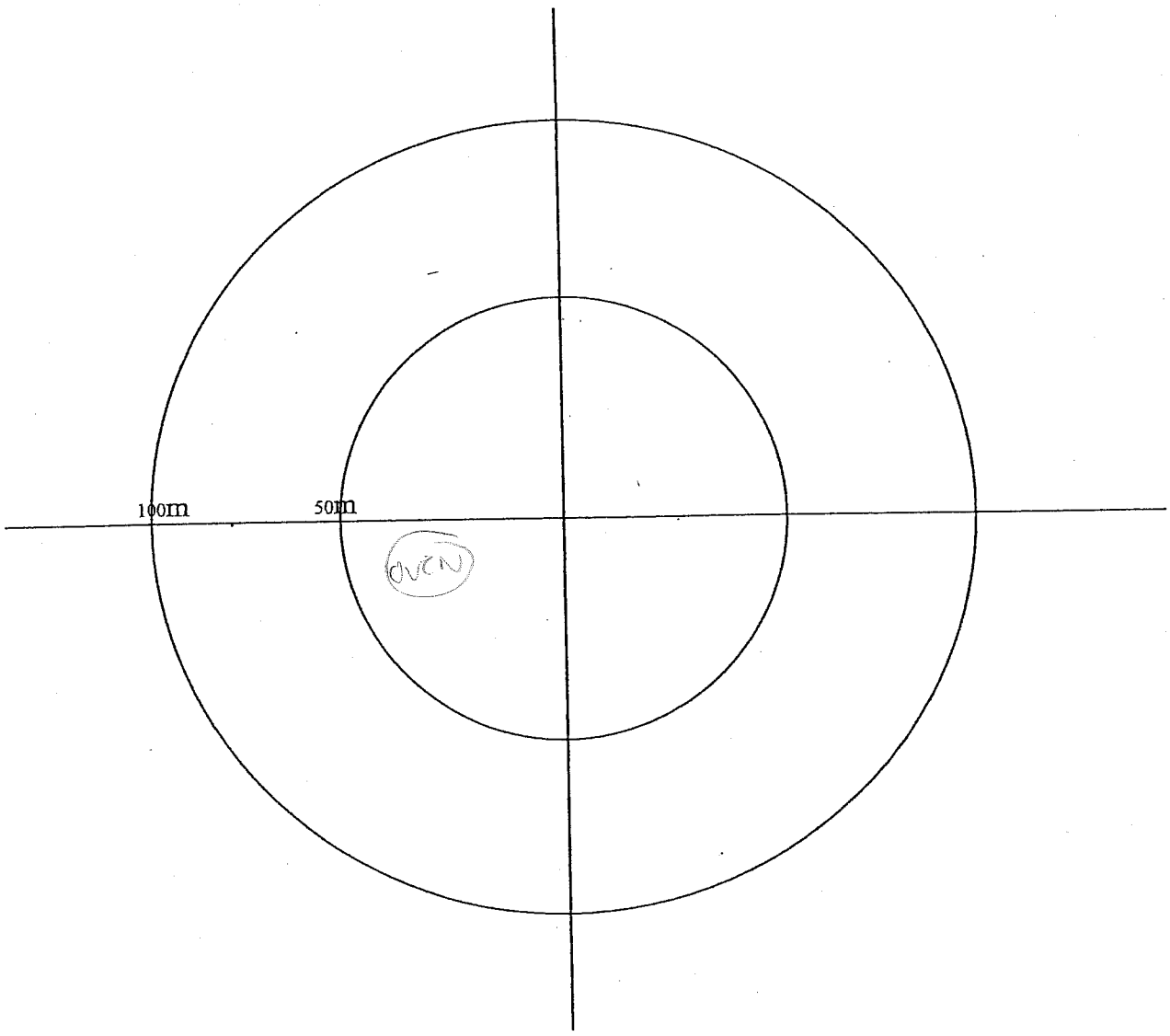
Symbols

- (RWBL) Single bird, singing/calling
- (RWBL) ← (RWBL) Diff. birds of same sp.
- Pair together
- Family group
- Obs., but not calling/singing
- Known change in position

Height

1 - BTH
2 - close to TH
3 - UBS
4 - WABS

Outside/Flythru
RWBA II
ELPA
AMER
OVEN



Wetland Point Count Data Form

Observer: Shin	Site: ~~[illegible]~~ NB	Date: June 1/11
Station ID: PT3	Visit #: 2	Start Time (HH:MM): 2045
Beaufort Wind Scale: B4	Cloud Cover (%): 20	Temperature (°C): 21
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

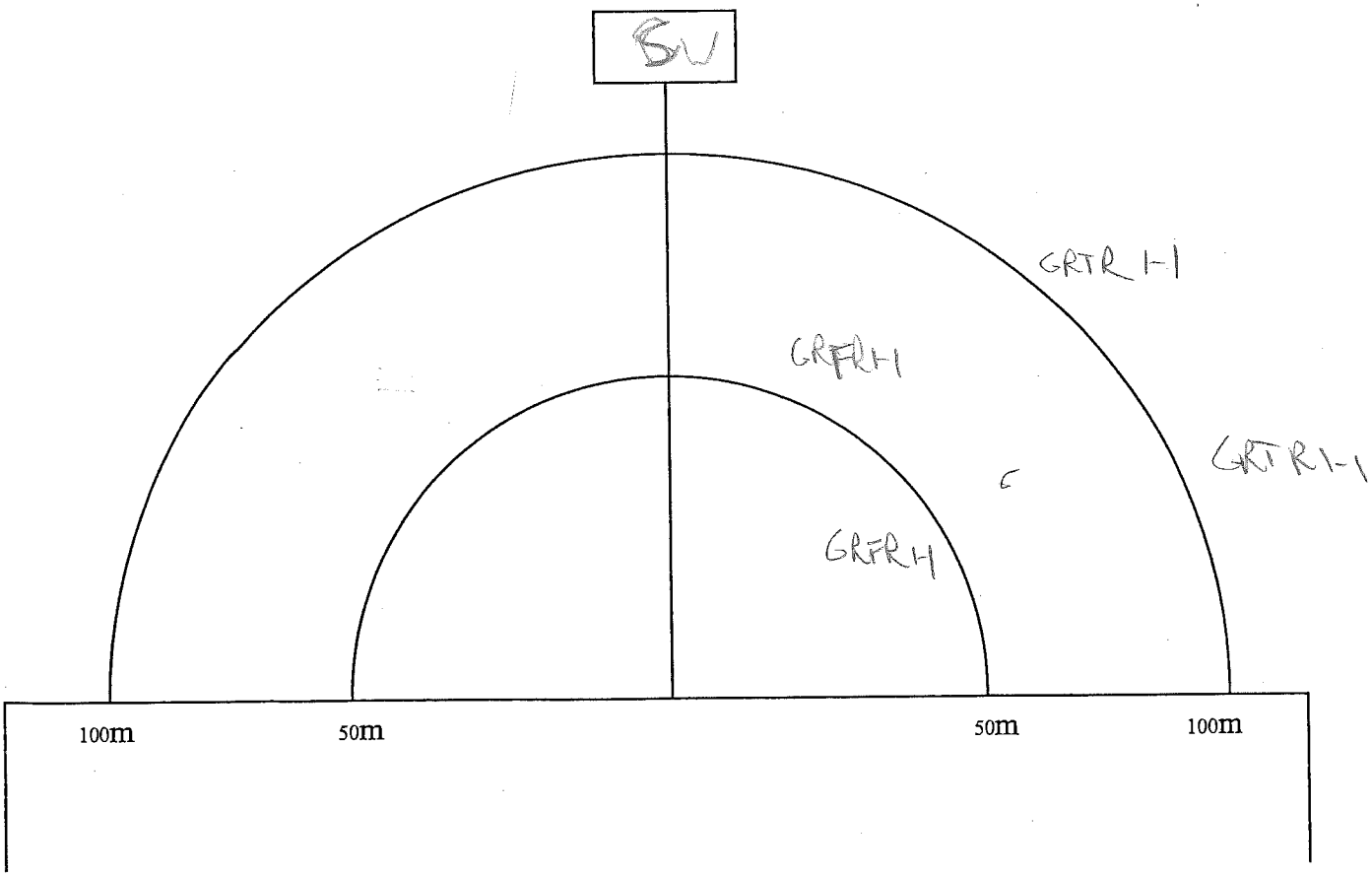
Known change in position. RWBL → RWBL

Nest ☆ TRES

Outside/Flythru	

SOSP

RWBL



Wetland Point Count Data Form

Observer: SKM	Site: N/B	Date: June 1/11
Station ID: WT 5	Visit #: 2	Start Time (HH:MM): 21:01
Beaufort Wind Scale: B3	Cloud Cover (%): 50	Temperature (°C): 21
Precipitation: —	Visibility: —	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

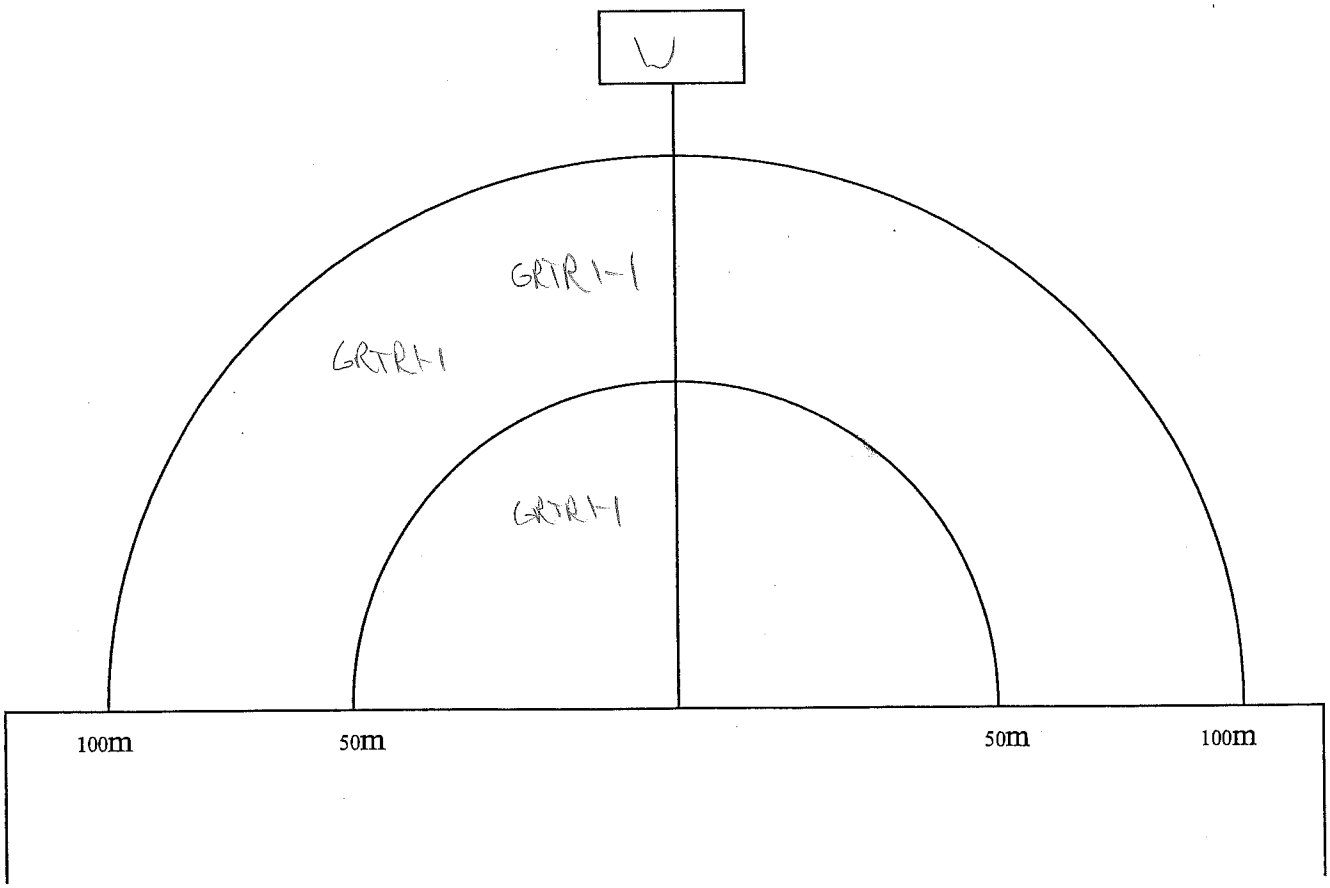
Nest ☆ TRES

Outside/Flythru	

GRHE Flyg USL

SORA

WOOD - P - 50



Wetland Point Count Data Form

Observer: Shin	Site: NB	Date: June 1/11
Station ID: P14	Visit #: 2	Start Time (HH:MM): 9:13
Beaufort Wind Scale: B 1	Cloud Cover (%): 75%	Temperature (°C): 25
Precipitation: —	Visibility: clear	
Remarks: occ. car noise, curious passerby		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

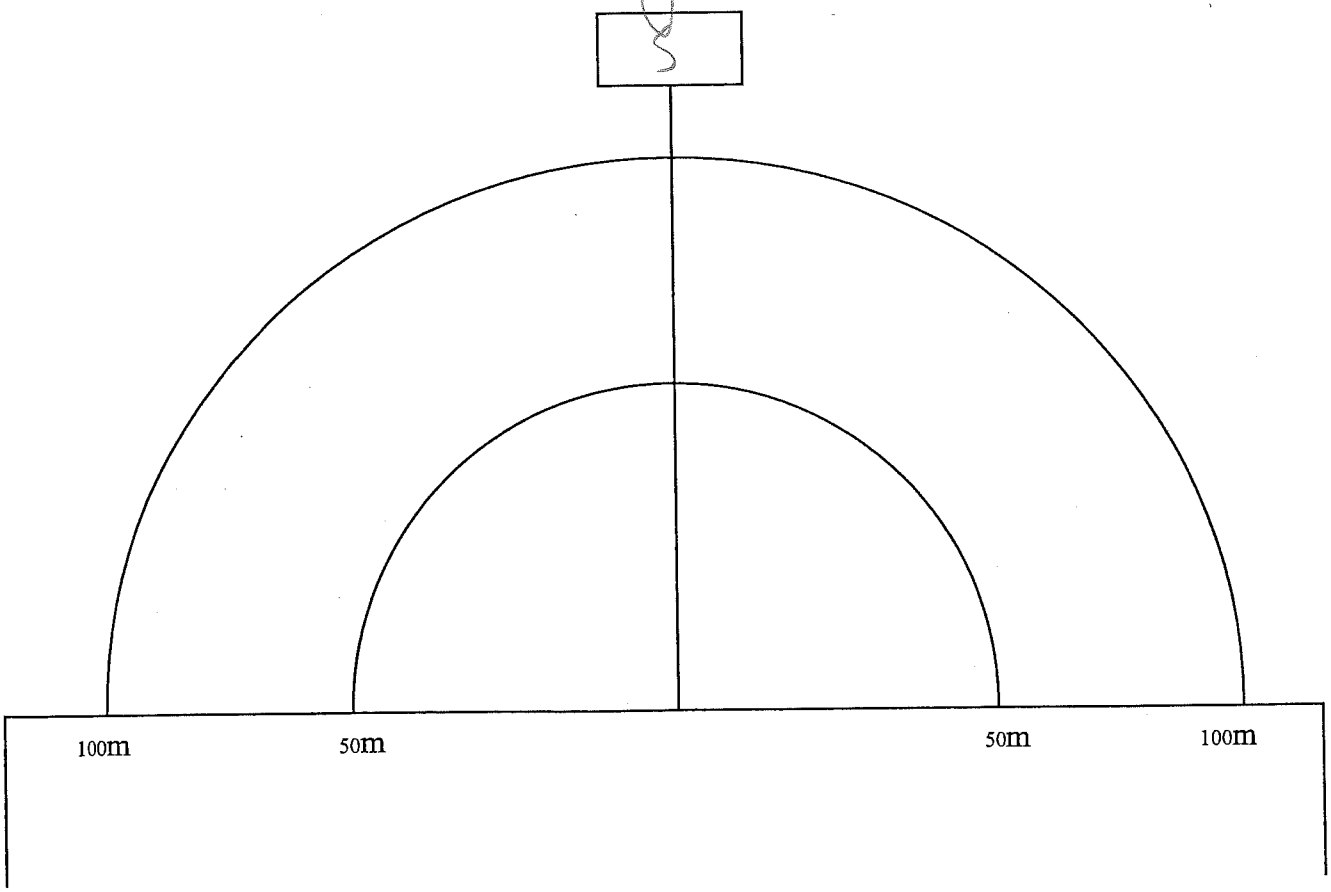
Known change in position. RWBL → RWBL

Nest TREES

Outside/Flythru	

no frogs

S



Wetland Point Count Data Form

Observer: Skm	Site: NB	Date: June 1
Station ID: PT 1	Visit #: 2	Start Time (HH:MM): 2:19
Beaufort Wind Scale: B4	Cloud Cover (%): 80	Temperature (°C): 21
Precipitation: —	Visibility: clear	
Remarks:		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

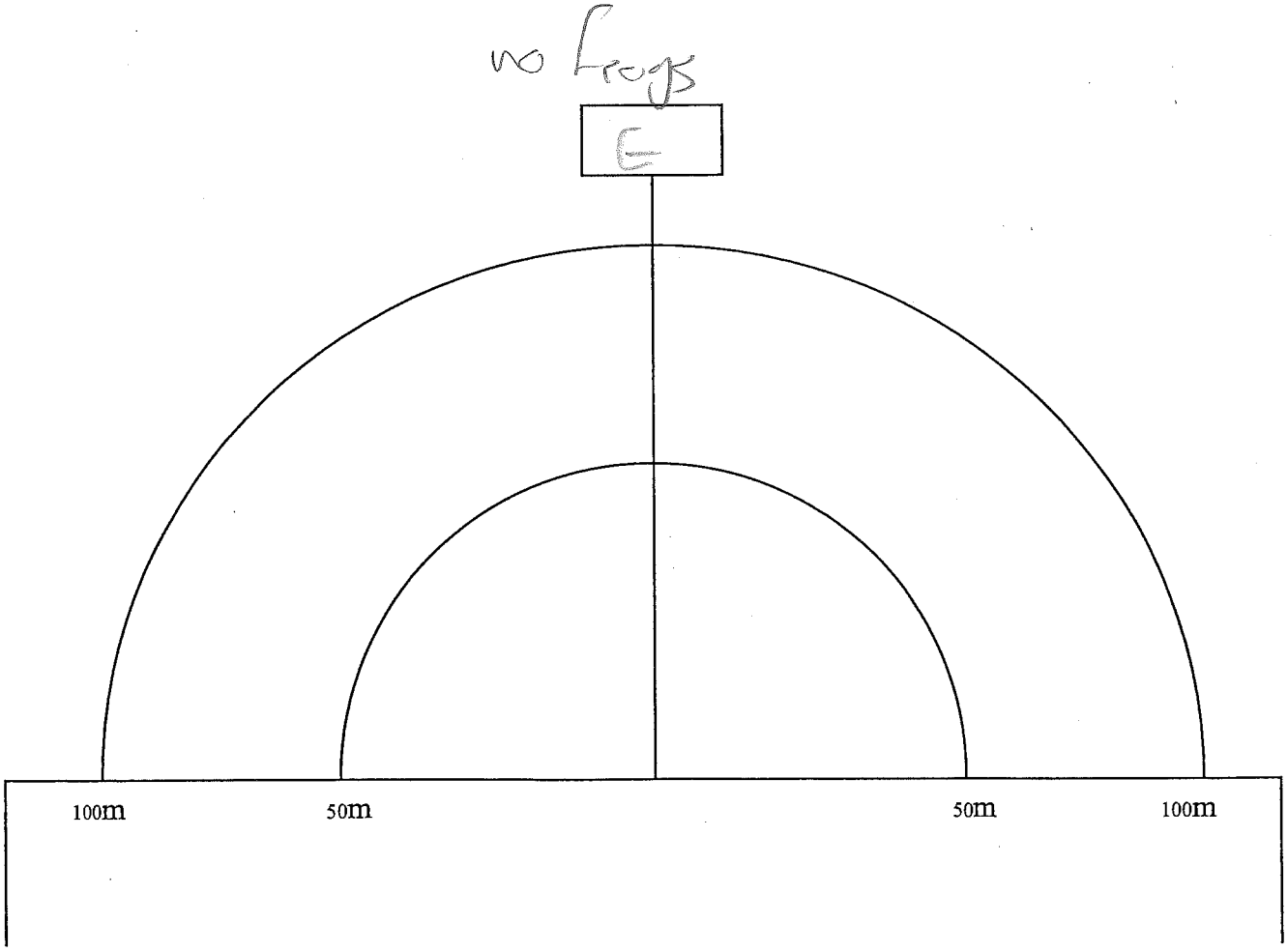
Nest TRES

Outside/Flythru	

Skype in wetland

no frogs

E



Wetland Point Count Data Form

Observer: SKH	Site: NB	Date: June 1 '11
Station ID: pt 2	Visit #: 2	Start Time (HH:MM): 21'25
Beaufort Wind Scale:	Cloud Cover (%): 80	Temperature (°C): 19
Precipitation:	Visibility:	
Remarks: reg. road noise; backshore cleared out beaver dam; impacted other		

Aerial Foragers		
Species	Tally	No.

Symbols

Singing/calling bird RWBL

Simultaneous song/diff. birds RWBL — RWBL

Pair together SWSP

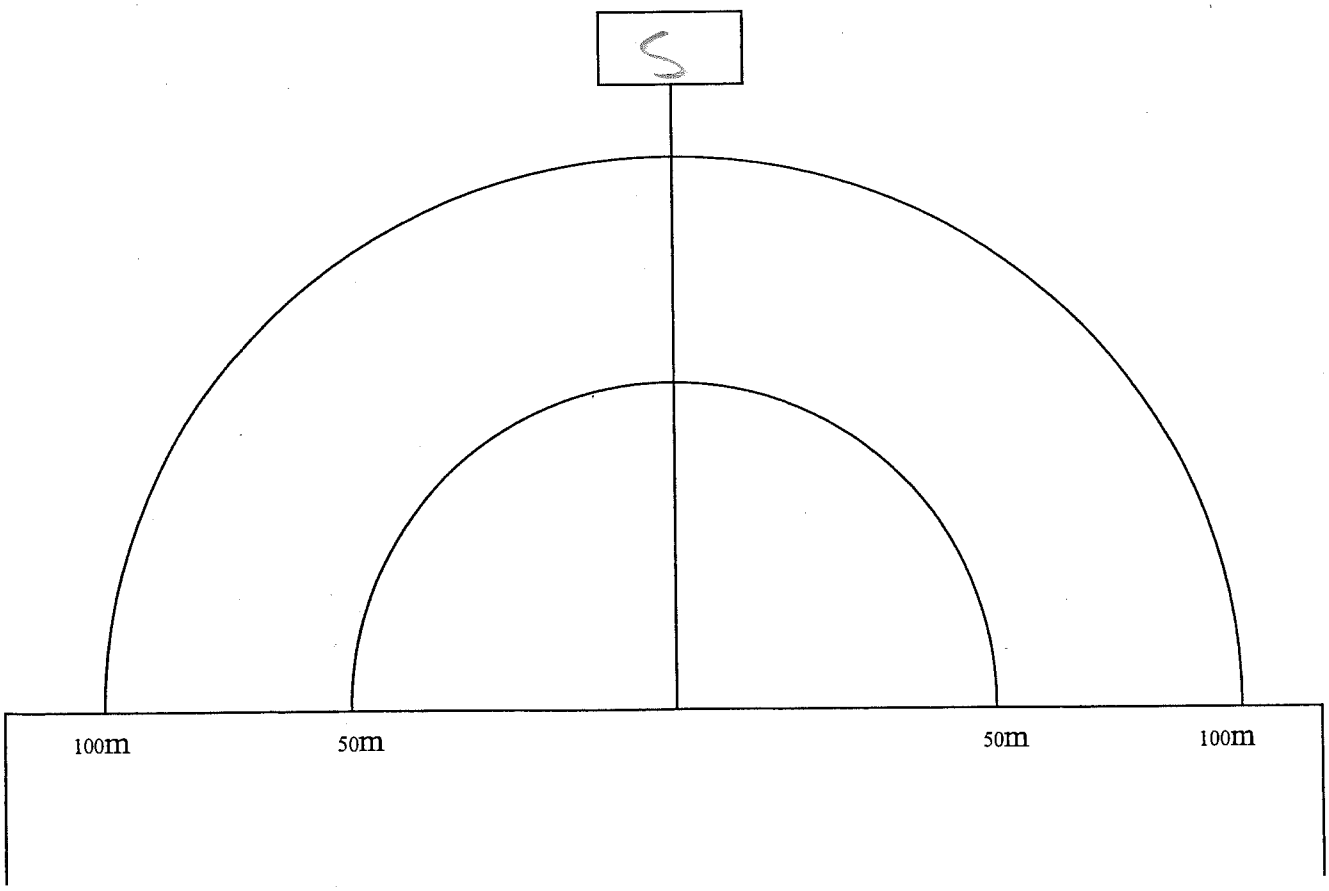
Family group (incl. # of adults) CAGO

Obs. but not calling or singing GTBH

Known change in position. RWBL → RWBL

Nest TRES

Outside/Flythru	



Amphibian Point Count Data Form

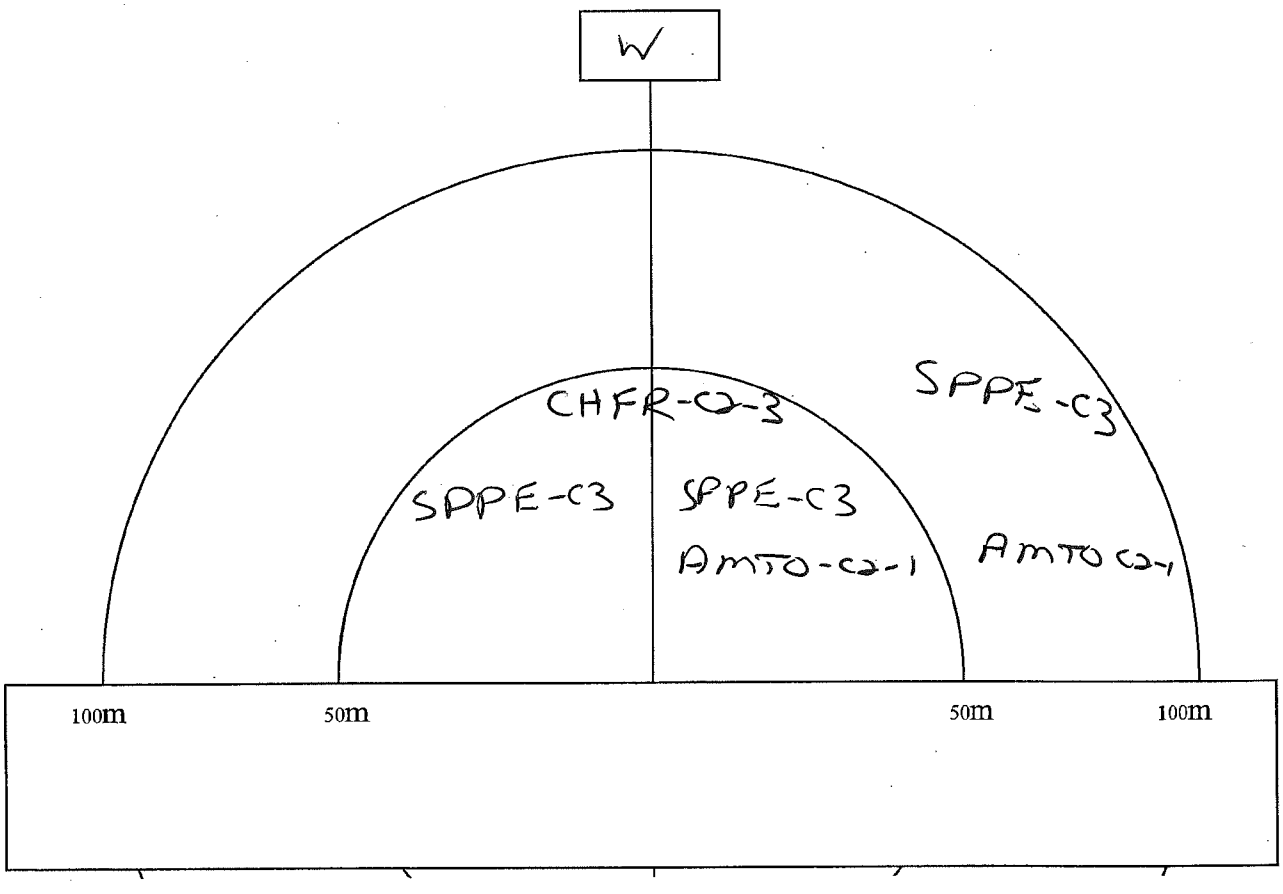
Observer: Caleb + Noam	Site: No. 7a Bulsecs	Date: May 7
Station ID: 5	Visit #:	Start Time (HH:MM): 9:45
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:48
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks:		
Behind old Barns to the west - Field Edge.		
Wetland begins. 5m then open water.		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR	✓	✓
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

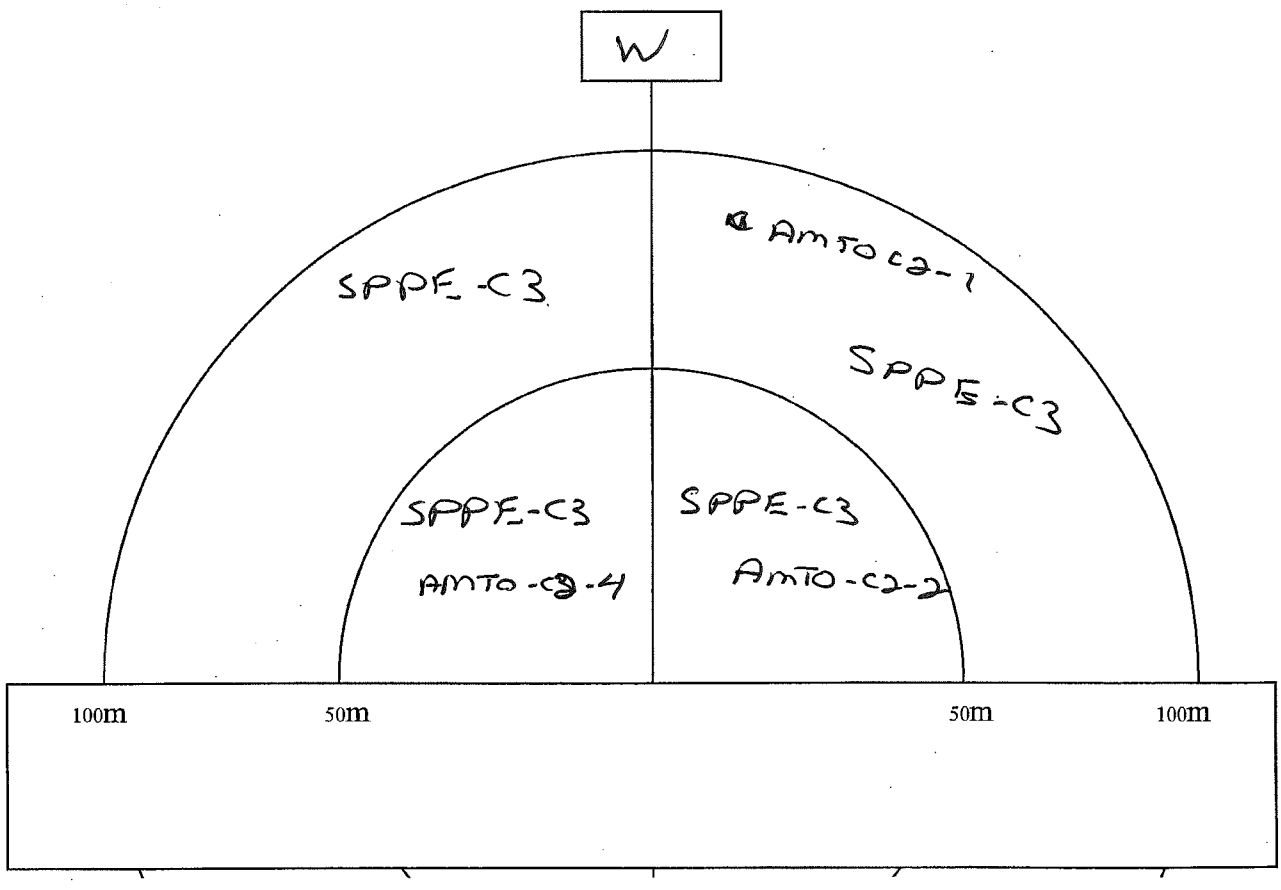
Observer: Caleb + Noam	Site: North Burgess	Date: May 7th
Station ID: 3	Visit #:	Start Time (HH:MM): 9:00
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:03
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks: Edge of Planted Field - Open Water.		
10m in Flat Flooded Grass in first 10m		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

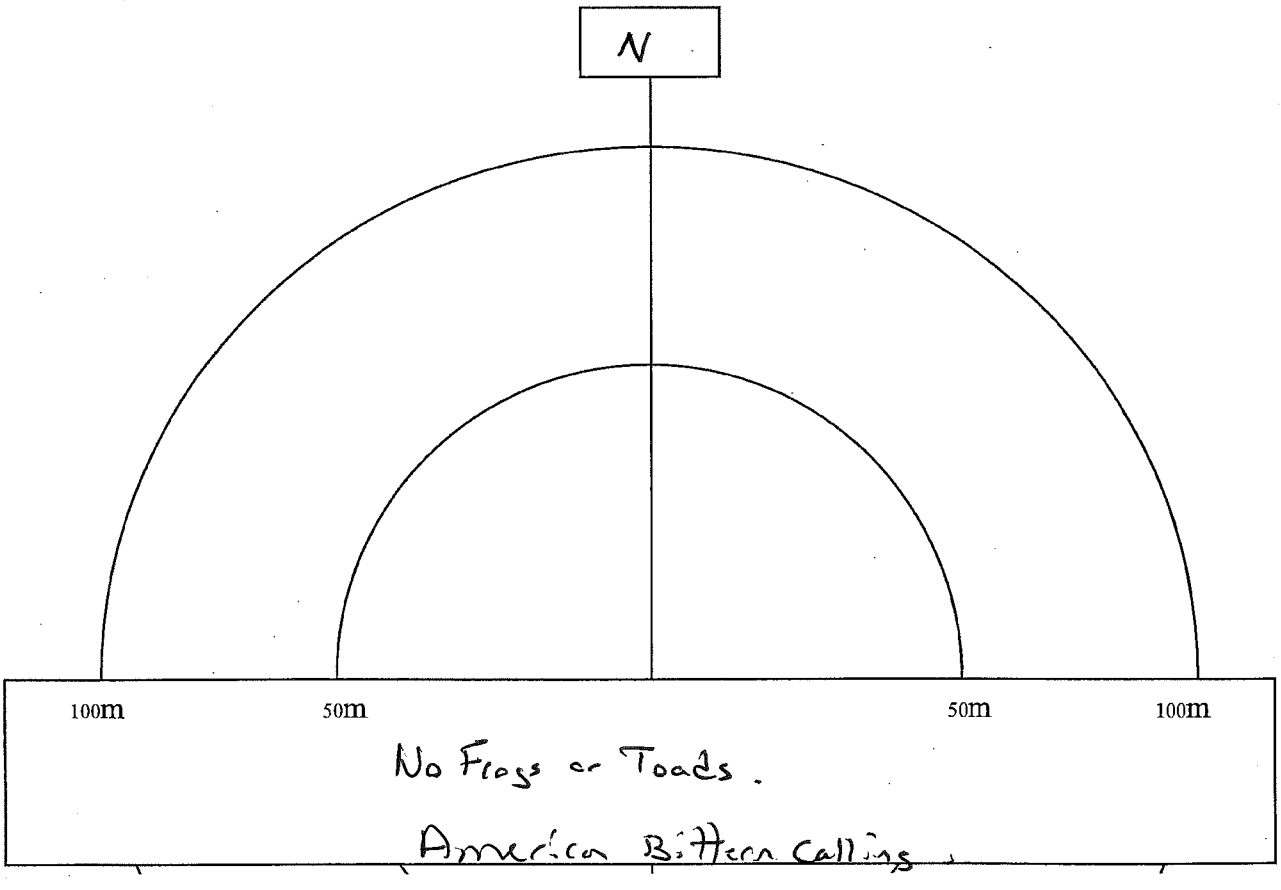
Observer: Caleb + Norm	Site: NB-1 North Burgess	Date: May 7th
Station ID: 1	Visit #:	Start Time (HH:MM): 8:10
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 8:13
Precipitation: 0	Visibility: Ex	Temperature (°C): 10°C
Remarks:		
Roadside - Narrows Lock Road. cattail marsh		
with some of Road - No Frogs / American Bittern Seen and Heard		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO		✓
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

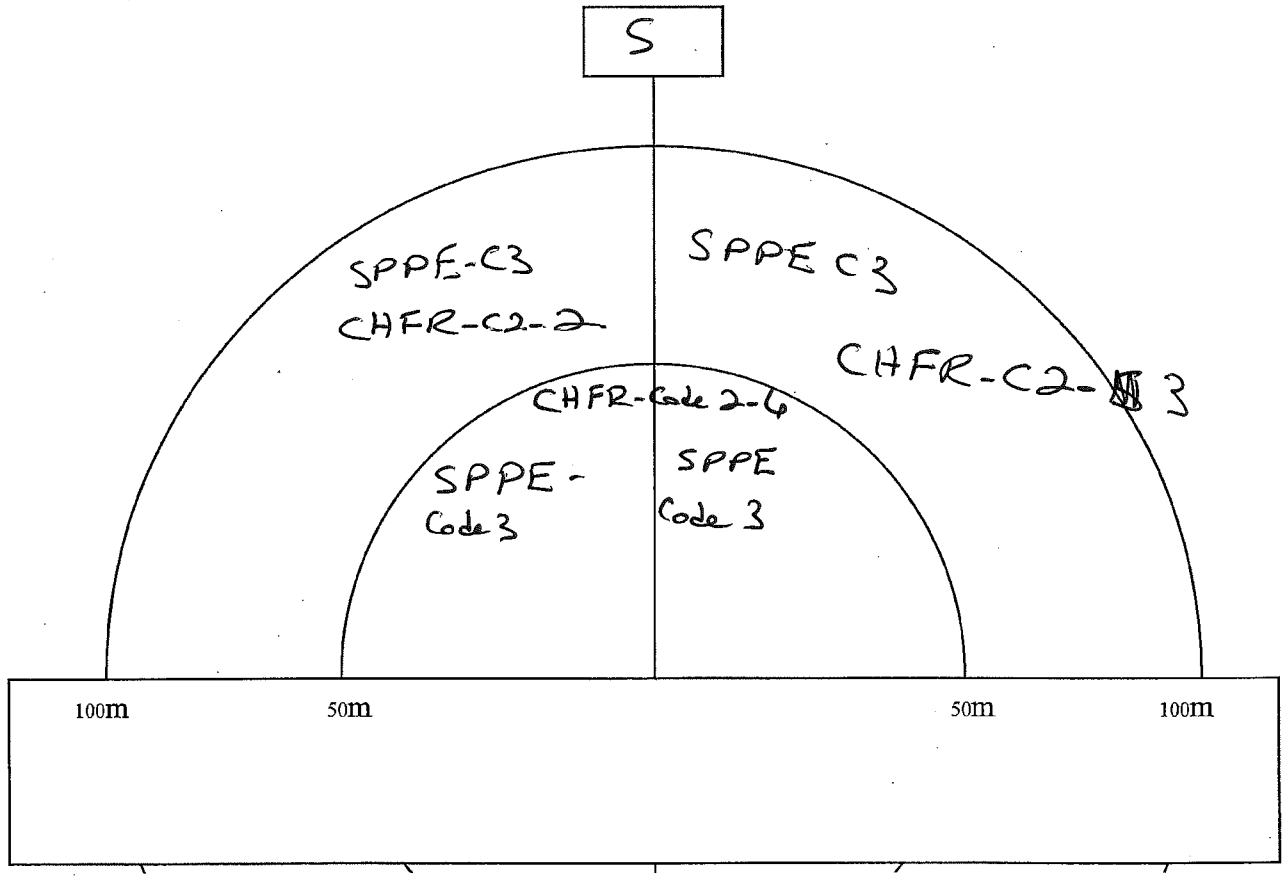
Observer: Caleb + Noem	Site: North Bulgess	Date: May 7th
Station ID: 2	Visit #:	Start Time (HH:MM): 8:25
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 8:28
Precipitation: 0	Visibility: Ex	Temperature (°C): 10°C
Remarks:		
Approx 30m off Road. open water in Front + to the West. Beaver dam		

Aerial Foragers		
Species	**IN***	**OUT****
AMTO	✓	✓
BCFR		
BULL		
CHFR	✓	
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE	✓	✓
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**



Amphibian Point Count Data Form

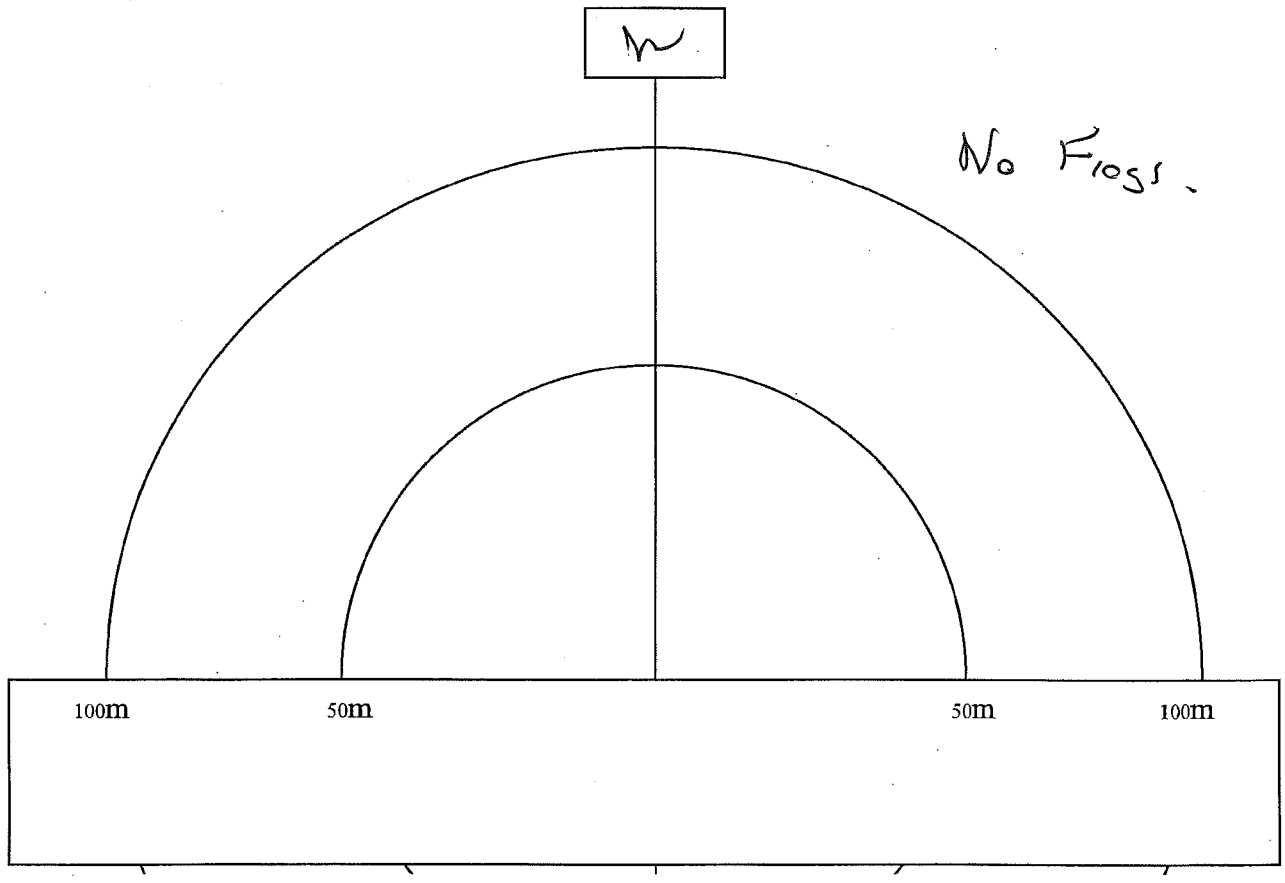
Observer: Caleb + Norm	Site: North Bulgess	Date: May 7th
Station ID: 4	Visit #:	Start Time (HH:MM): 9:20
Beaufort Wind Scale: 0	Cloud Cover (%): 50	Finish Time (HH:MM): 9:23
Precipitation: 0	Visibility: Ex	Temperature (°C): 10
Remarks:		
Roads: 2e Woodland - Vernal Pools		
No Calls		

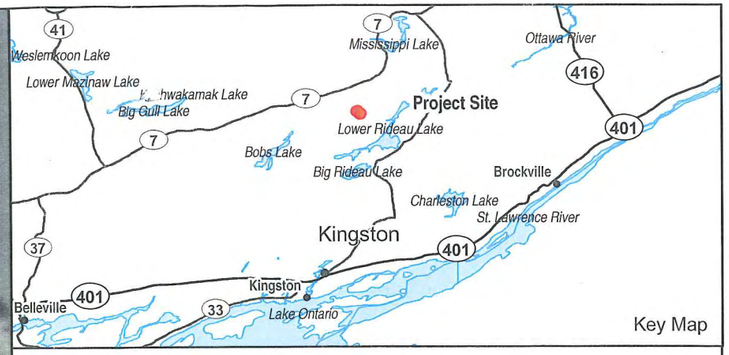
Aerial Foragers		
Species	**IN***	**OUT****
AMTO		
BCFR		
BULL		
CHFR		
FOTO		
GRTR		
GRFR		
MIFR		
NLFR		
PIFR		
SPPE		
WOFR		

Call Level Codes	
CODE 1	Calls not simultaneous, number of individuals can be accurately counted.
CODE 2	Some calls simultaneous, number of individuals can be reliably estimated.
CODE 3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

***Check if species is calling from inside 100-meter station area.**

****Check if species is calling from outside 100-meter station area.**





Legend

- Roads
- Grassed Waterways
- Watercourse
- Average Annual High Water Mark
- 30m Setback From High Water Mark
- Project Site
- Study Area
- Parcels
- Unevaluated Wetland
- Unevaluated Wetland Noted During Site Investigation

Project Components

- Connection Point With Existing Distribution Line
- Project Footprint Boundary
- Path Walked

0 30 60 120 Meters

1:3,008

NORTH

Notes:
1. OBM and NRVIS data downloaded from LIO, with permission.
2. Spatial referencing UTM NAD 83, August 2010.
3. Satellite imagery from Google Earth Pro.

Figure 4.1
Northland Power Inc.
North Burgess Solar Project
Water Body and Project Boundaries

HATCH™

P:\NORTHLAND\333751\DATABASES\334844\GIS\NBurgess\North Burgess - waterSiteInvestigation.mxd

May 7th
North Burgess.
Least B: Hen - Call Back 8:15 am - No call
Rat Snake - Transects 9:40 am
Temp 14°C, Sunny,

Red Tail Hawk observed - Large white - Pine - Nest protection Behaviour.

Transects Completed. 1:30 - No Snake Seen -
Raptor Call Backs Played.
14 Location See Map - No response
Red tail Nest Search. 2 old Nests - Possibly unfinished constructions, GPS would not work in Forest See map for Nest Locations

Amphibian See Data Sheets -

Owls Playback Same Points as Raptors - 10:15 pm - 11:30 pm
No Owls Heard/Seen

Scale: 1 square = _____

North Bergen [illegible]
Woodlot Evaluation
12:05 pm Friday Oct 8th
5:45 pm left Temp [illegible] wind [illegible] NW
Small Game trail [illegible]
North east corner [illegible]
Raccoon [illegible]

Only one large white [illegible]
in canopy from [illegible]
corner [illegible] fallen

Turkey Vulture [illegible]
circling Neighbors [illegible] -

Small Game Trail [illegible]
middle of woodlot.
[illegible] at Neighbors
Fence Row - Roadkill Porcupine
[illegible] Vulture

[illegible] Norways [illegible]
100% [illegible]
[illegible], Tamarack Aspen
2 White Birch - [illegible] large [illegible]

* Planted ... along Stanley ...

Approx 20m of Low lying Pool - Has Lack ... Sensitive Fern indicate majority of the ... GPS - Pool ... year photo

50m off NLR Forest composition ... Few Mature trees greater than 12inches DBH.

Abundant Young Hard Maple Saplings to ~~[illegible]~~ DBH ... 4inch

Sparse Yellow Birch

Less than 1%

100% leaf litter ground cover

Yellow Birch

p.12

A lot of Browse Available
None seen.

American Beach

Canopy

Sub Canopy

85m of [illegible] Stand increase
~~100~~m in age a few [illegible]
[illegible] maples - most leader
Dying - excellent [illegible]
Trees. Photo - GPS Coordinates

Black Cherry Canopy

Sub Canopy

Poorly Trees include Primarily
[illegible] HSL. Photo
Yellow Birch [illegible]

No Sign of ... very large
... Bear use
...

40m West of Pool 2

Transition Area
Hard maple to the North mese ...
45m of Bush...
... Space Hard Maple

No evidence of Disturbance

South Side Conifer ledding
Into Red Pine Plantation
...

GPS - Trans
Photos ...West.

On South East Side of Bush ... Maple
... Plantation ... Triangle
...

Resumes
Spare Iron Wood.

Flagging Tape - Fence Preparing
line - White Spruce plantation
become Red pine planting
GPS WS-RP

North west of Beech
deciduous portion of Beech
[illegible] Plot mostly young
trees less the 4in DBH
too many to count ~~[illegible]~~
of 50 approximately 75
visible from one location
Only 3 would be in canopy

Beech tally on Previous Page
changed to only include
~~[illegible]~~ possible mast producers

Beech Mast Producers
~~[illegible]~~ 23 + L

Moving West of Beech stand
Resumes back to maple with
Spruce Iron Wood.

Red Pine Plantation — Approx 40 years
Regeneration of old fence line
Stone Piles -
GPS OLD Fence - RP
Red cherries canopy

Western side of RP plantation
old Stone fence
GPS - Stone fence
- photo's

Western side of fence
- Buckthorn
- Norway maple

Red Pine Plantation Trees
& White Spruce plantation
towards Eastern property
boundary
GPS - RP-WS
Photo's

eastern [illegible] ons - Very few **7**

No
- eastern chipmunk
- 3 - Red squirrels
- Wild turkey scratchings
- Coyote tracks in plowed and
No deer sign or bear

E1c - Red Pine ~~[illegible]~~ CUD3-1

- Hardwoods - FOD5
with small pockets of FOD5-3

White Spruce CUP3-8

NB Wetland BBS

June [illegible]

Start 08:40
End 09:30

[illegible] 18°C
B3-BY

WIFL → wetland
RWBL [illegible]
BRTH → shrubby
OVEN → wetland
BWWA → shrubby
COYE - shrubby wetland

OVEN nest

Green frogs calling in wetland → ~5

VP. 44.81584
-76.30[illegible]

Wetland

BWWA
OVEN ||||
CORE
BCCH ||
CWPW |||
AMCR |
REVI |||
BLJA
MAWA

edge of spruce E
44.81449
-76.30262

S edge of pine
Lat. 44.81391
Long -76.3059

edge of spruce W
44.81408
-76.30388

HATCH™

Woodlot Located in Center of Farm.

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess		POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start	
		finish	
UTMZ:	UTME:	UTMN:	

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Large toothed Aspen, Basswood, Black Cherry
2	SUB-CANOPY	3	3	Buckthorn, White Ash
3	UNDERSTOREY			
4	GRD. LAYER	7	4	Grasses.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	N	> 50
STANDING SNAGS:	O	< 10	O	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy - loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: unk		(cm)

COMMUNITY CLASSIFICATION: ELC CODE

COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD3-1

North End / Eglund western Field.

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Burgess - 2 | POLYGON:

SURVEYOR(S): Caleb + Sean | DATE: June 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR			G SAVANNAH
G BEDROCK		G SAND DUNE	G TREED		G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	3	Locust - Black, Bucktheen
2	SUB-CANOPY	4	1	Bucktheen, Black Locust
3	UNDERSTOREY			
4	GRD. LAYER	5	1	Raspberry - Purple + Red, Golden Rod, Virginia Creeper

HT CODES: 1 = >25 m 2 = 10<HT≤25 m 3 = 2<HT≤10 m 4 = 1<HT≤2 m 6 = 0.5<HT≤1 m 6 = 0.2<HT≤0.5 m 7 = HT<0.2 m

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	N	25 - 50	N	> 50
STANDING 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

COMM. AGE :		PIONEER	X	YOUNG		MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:

POLYGON:

DATE:

SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

South End of Western Field

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: North Bwoss - 3 | POLYGON:

SURVEYOR(S): Caleb + Sea | DATE: Jun 1 | TIME: start / finish

UTMZ: | UTME: | UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
SITE	G BASIC BEDRK.	G VALLEY SLOPE	COVER	G FORB	G MARSH
G OPEN WATER	G CARB. BEDRK.	G TABLELAND	G OPEN	G LICHEN	G SWAMP
G SHALLOW WATER		G ROLL. UPLAND	G SHRUB	G BRYOPHYTE	G FEN
G SURFICIAL DEP.		G CLIFF	G TREES	G DECIDUOUS	G BOG
G BEDROCK		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	Hard Maple, Ironwood, Black Cherry
2	SUB-CANOPY	4	3	Hard Maple, Ironwood.
3	UNDERSTOREY			
4	GRD. LAYER	7	3	Grasses, Horsetail, Sugarcane Moss.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION: | BA:

SIZE CLASS ANALYSIS:	A	< 10	O	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 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

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1cm		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: 15		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:
POLYGON:
DATE:
SURVEYOR(S):

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FODS-4

ELC — COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - South Woodlot	POLYGON:	
SURVEYOR(S):	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Hard maple, White Birch, Yellow Birch, Beech
2	SUB-CANOPY	2	3	Ironwood, Hard maple.
3	UNDERSTOREY			
4	GRD. LAYER	7	1	Ferns, moss.

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	A	< 10	R	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	R	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	N	< 10	O	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG		MID-AGE	X	MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sandy-Loam	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry-fresh	DEPTH OF ORGANICS: 3-4		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown.		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC — STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR:

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

FOD 5-1

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Spruce Plantation	POLYGON:	
SURVEYOR(S): Caleb + Sean	DATE: June 1	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
		G TALUS		G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
		G ALVAR			G PRAIRIE
		G ROCKLAND			G THICKET
		G BEACH / BAR			G SAVANNAH
		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

SITE	COVER
G OPEN WATER	G OPEN
G SHALLOW WATER	G SHRUB
G SURFICIAL DEP.	G TREED
G BEDROCK	

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	White Spruce.
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	R	< 10	A	10 - 24	N	25 - 50	N	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	R	< 10	N	10 - 24	N	25 - 50	R	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 0.5		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CUP3-8

ELC COMMUNITY DESCRIPTION & CLASSIFICATION

SITE: NB - Red Pine Plant	POLYGON:	
SURVEYOR(S): Caleb + Sam.	DATE:	TIME: start / finish
UTMZ:	UTME:	UTMN:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
G TERRESTRIAL	G ORGANIC	G LACUSTRINE	G NATURAL	G PLANKTON	G LAKE
G WETLAND	G MINERAL SOIL	G RIVERINE	G CULTURAL	G SUBMERGED	G POND
G AQUATIC	G PARENT MIN.	G BOTTOMLAND		G FLOATING-LVD.	G RIVER
	G ACIDIC BEDRK.	G TERRACE		G GRAMINOID	G STREAM
	G BASIC BEDRK.	G VALLEY SLOPE		G FORB	G MARSH
	G CARB. BEDRK.	G TABLELAND		G LICHEN	G SWAMP
		G ROLL. UPLAND		G BRYOPHYTE	G FEN
		G CLIFF		G DECIDUOUS	G BOG
SITE		G TALUS	COVER	G CONIFEROUS	G BARREN
		G CREVICE / CAVE		G MIXED	G MEADOW
G OPEN WATER		G ALVAR	G OPEN		G PRAIRIE
G SHALLOW WATER		G ROCKLAND	G SHRUB		G THICKET
G SURFICIAL DEP.		G BEACH / BAR	G TREED		G SAVANNAH
G BEDROCK		G SAND DUNE			G WOODLAND
		G BLUFF			G FOREST
					G PLANTATION

STAND DESCRIPTION:

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (up to 4 sp) (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	1	4	Red Pine
2	SUB-CANOPY			
3	UNDERSTOREY			
4	GRD. LAYER			

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

CVR CODES 0= NONE 1= 0% < CVR ≤ 10% 2= 10 < CVR ≤ 25% 3= 25 < CVR ≤ 60% 4= CVR > 60%

STAND COMPOSITION:	BA:

SIZE CLASS ANALYSIS:	N	< 10	A	10 - 24	O	25 - 50	R	> 50
STANDING SNAGS:	N	< 10	N	10 - 24	N	25 - 50	N	> 50
DEADFALL / LOGS:	O	< 10	V	10 - 24	N	25 - 50	N	> 50

ABUNDANCE CODES: N = NONE R = RARE O = OCCASIONAL A = ABUNDANT

COMM. AGE :		PIONEER		YOUNG	X	MID-AGE		MATURE		OLD GROWTH

SOIL ANALYSIS:

TEXTURE: Sand	DEPTH TO MOTTLES / GLEY	g =	G=
MOISTURE: Dry	DEPTH OF ORGANICS: 1		(cm)
HOMOGENEOUS / VARIABLE	DEPTH TO BEDROCK: Unknown		(cm)

COMMUNITY CLASSIFICATION:

		ELC CODE
COMMUNITY CLASS:		
COMMUNITY SERIES:		
ECOSITE:		
VEGETATION TYPE:		
INCLUSION		
COMPLEX		

Notes:

ELC STAND CHARACTERISTICS

SITE:	
POLYGON:	
DATE:	
SURVEYOR(S):	

TREE TALLY BY SPECIES:

PRISM FACTOR

SPECIES	TALLY 1	TALLY 2	TALLY 3	TALLY 4	TALLY 5	TOTAL	REL. AVG
TOTAL							100
BASAL AREA (BA)							
DEAD							

STAND COMPOSITION:

COMMUNITY PROFILE DIAGRAM

Notes:

ELC-CWP3-1

Appendix B

Natural Resource Solutions Inc.
Wetlands Site Investigation

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Memo

Project No. 1142

To: **Sean Male**

From: **David Stephenson**

Date: **June 21, 2011**

Re: **North Burgess Solar Project Wetland Evaluation**

The wetlands in the vicinity of the proposed North Burgess Solar Project lands are unevaluated at this time. The new Natural Heritage Assessment Guide (NHAG) for Renewable Energy Projects (OMNR 2010) allows for the evaluation of these wetlands using Appendix C.

Our assessment of the unevaluated wetland complex, within the catchment area provided on the attached Catchment Area map in accordance with the appropriate sections of the Ontario Wetland Evaluation System for Northern Ontario (MNR 2002), is attached as Table 1. It is our understanding that this table will be used by Hatch to identify potential negative environmental effects and mitigations as required for preparation of an EIS as per the NHAG.

The field study approach taken by NRSI during the August 11 and 12, 2010 site visit included:

- Collection and review of background information on wetland-related natural features in the vicinity of the project location.
- Identification of all wetlands, evaluated and non-evaluated, within approximately 750m of the subject wetlands to assess the extent of wetland mapping that would be required to address whether wetlands in the vicinity of the project location would be complexed with other wetlands (i.e. to identify whether a 'string' of unevaluated wetlands occur between the subject wetlands and the nearest evaluated wetland).
- Conducted field surveys of subject wetlands on the project location as well as on neighbouring lands. This included mapping of wetland vegetation communities based on Ontario Wetland Evaluation System (OWES) Northern Manual as well as Ecological Land Classification (ELC), and recording all species of flora and fauna within the wetlands.

As part of Appendix C of the NHAG, we have completed an interspersion map covering the wetlands in the catchment area, and have attached the interspersion map with this memo.

I trust that this information is adequate. If any further information or clarification is needed please contact me.

Yours Sincerely,
Natural Resource Solutions Inc.

David Stephenson, M.Sc.,
Senior Biologist

Work Cited

Work Cited:

Natural Heritage Information Centre (NHIC). 2010. Species Search. Ministry of Natural Resources. Online: https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do

Ontario Ministry of Natural Resources. 2010. Natural Heritage Assessment Guide for Renewable Energy Projects. Ontario Ministry of Natural Resources.

Ontario Ministry of Natural Resources. 2002. Ontario Wetland Evaluation System: Northern Manual.

Appendix C
Natural Heritage Assessment Guide
Completed Analysis

Table 1 Wetland Characteristics and Ecological Functions Assessment for Renewable Energy Projects, Wetland Complex

Characteristic/ Ecological Function	Evaluation Results	Scoring
Actual Wetland Size (ha)	**Wetland 1:** = 0.31ha Reed canary grass marsh (neM_1) **Wetland 2:** = 0.66ha Graminoid meadow marsh (neM_2) **Wetland 3:** = 13.13ha Willow thicket swamp (tsS_1) Black ash swamp (hS_2) **Wetland 4:** = 27.34ha Meadow marsh (reM_3) Speckled alder thicket swamp (tsS_3) Slender willow thicket swamp (tsS_4) Mixed graminoid meadow marsh (neM_4) Cattail marsh (reM_5) Cattail marsh (reM_6) Mixed graminoid meadow marsh (neM_7) Reed canary grass marsh (neM_8) Broad-leaved sedge marsh (neM_9) Slender willow thicket swamp (tsS_5) Giant manna grass marsh (neM_{10}) Meadowsweet Thicket Swamp (tsS_6) Black ash swamp (hS_7) Black ash swamp (tsS_8) Graminoid marsh (neM_{11}) Reed canary grass marsh (neM_{12}) Cattail marsh (reM_{20}) Mixed graminoid meadow marsh (neM_{21}) **Wetland 5:** = 4.73ha Slender willow thicket swamp (tsS_9) Reed canary grass marsh (neM_{13}) Reed canary grass marsh (neM_{14}) Cattail marsh (reM_{15}) Floating-leaved aquatic ecosite (fM_{19}) **Wetland 6:** = 4.60ha Slender willow thicket swamp (tsS_{10})	

	Slender willow thicket swamp (tsS_{11}) **Wetland 7:** = 3.17ha Mixed willow thicket swamp (tsS_{12}) Speckled alder thicket swamp (tsS_{13}) Reed canary grass marsh (neM_{17}) Mixed meadow marsh (neM_{18}) **Wetland 8:** = 2.89ha Mixed shallow aquatic ecosite (suM_{16}) Black ash swamp (hS_{24}) **Total : 56.52ha**	
Wetland Type	1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area) Fractional Area / Score Bog 0.00 (x 3) Fen 0.00 (x 6) Swamp 0.57 (x 8) 4.56 Marsh 0.43 (x 15) 6.45 **Wetland type score (maximum 15 points)** 11 **Fractional Area of Wetland Types:** **Swamp:** *Swamp (ha)* Total ha = 32.22 FA=32.22/56.52 =0.57 **Marsh:** *Marsh (ha)* Total ha = 24.30 FA =24.30/56.52 =0.43	11
Site Type	Palustrine: 0.3354*2 =0.671 Riverine: 0.6746*4 =2.698	3
Vegetation Communities	Number of communities with 1-3 forms: 30 = 17.5 pts Number of communities with 4-5 forms: 4 = 6.5	24

Proximity to other Wetlands	Hydrologically connected by surface water to other wetlands (same dominant wetland type), within 0.5 km	8
Interspersion	See Appended Interspersion Map. Total vertical: 37 Total horizontal: 38 Total = 75	12
Open Water Types	Open water occupies 5-25% of the wetland area, occurring in ponds of various sizes; vegetation occurs in dense patches or diffuse open stands. (Type 3).	14
Flood Attenuation (total)	Details of Flood Attenuation calculations are provided below in Table 1.	100
Water Quality Improvement (Total)	Details of water quality improvement calculations are provided below Table 1.	
Shoreline Erosion Control	**Step 1:** If any part of the wetland is riverine or lacustrine (proceed to Step 2) = Yes, therefore go to step 2 **Step 2:** Choose the one characteristic that best describes the shoreline vegetation = Emergent vegetation	8
Groundwater Recharge (Total)	Details of Groundwater Recharge calculations are provided below in Table 1.	5
Species Rarity(Total)	No rare species noted during 2010 surveys within the wetland. **Section** **4.1.2.1 Breeding Habitat for Endangered or Threatened Species** = none **4.1.2.2** T**raditional Migration or Feeding Areas for an Endangered or Threatened Species** = none **4.1.2.3** and **4.1.2.4 Provincially Significant Plant and Animal Species** = none **4.1.2.5 Regionally Significant Species** = none **4.1.2.6 Locally Significant Species** = none **4.1.2.7 Species of Special Status** = none	0
Significant Features and Habitats (Total)	**Section:** **4.2.1 Colonial Waterbirds** = none **4.2.2 Winter Cover for Wildlife** = none **4.2.3 Waterfowl Staging and/or Molting Area** = none **4.2.4 Waterfowl Breeding** = none	0
Fish Habitat (Total)	No information regarding the fish community of the unnamed tributaries of Grants Creek that run through the subject property was found during the records review. A visual aquatic habitat survey of the tributaries was conducted on June 23, 2010. The main tributary on the property runs through several wooded areas and a large open wetland immediately adjacent to the western subject property boundary. It enters a wooded	

	area on the subject property and flows for approximately 300m before emerging into an open wetland with a large online pond created by a beaver dam across the tributary. The pond is approximately 20m wide by 60m long. It is surrounded by a hummocky meadow marsh comprised of a variety of grasses (e.g. Canada blue-joint, *Calamagrostis canadensis*), sedges and forbs. There is dense submergent and floating leaved vegetation throughout much of the open water area. The tributary then drains into Grants Creek, northwest of the subject property. This tributary, most notably within the wetland pond areas, likely provides seasonal fish habitat (e.g. wetland spawning, nursery and/or foraging functions) for the fish community of Grants Creek, and may provide permanent fish habitat for a resident fish community if it stays wet year round and sufficient flow is present to avoid stagnation. The wetland also provides some hydrology and water quality regulation for Grants Creek, which does provide permanent fish habitat for the resident fish community. The smaller tributaries of this main tributary include wetland habitats which may provide similar seasonal and/or permanent fish habitat functions.	

Flood Attenuation Calculations:

HYDROLOGICAL
3.0 COMPONENT

FLOOD
3.1 ATTENUATION

If the wetland is a complex including isolated wetlands, apportion the l00 points according to area. For example if 10 ha of a l00 ha complex is isolated, the isolated portion receives the maximum
proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1: Detennination of Maximum Score

_____	Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4)
_____	Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
x	All other wetland types (Go through Steps 2,3 and 4B)

Step 2: Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)		56.62
(b)	Total area (ha) of upstream detention areas (include the wetland itself)		56.62
(c)	Ratio of (a):(b)		1.00
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	2.00	1.00

Step 3: Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)		56.62
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)		56.62
(c)	Ratio of (a):(b)		1.00
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	10.0	1.00

Step 4:		Calculation of final score			
(a)		Wetlands on large lakes or major rivers		0	
(b)		Wetland entirely isolated		l00	
(b)		All other wetlands --calculate as follows:			
	(c	* Complex Formula - Isolated portion	100.0	1	
		Initial Score		100 *	
		Upstream detention factor (DF) (Step 2)		1.00	
		Wetland attenuation factor (AF) (Step 3)		1.00	
		Final score: [(DF + AF)/2] x Initial score =		100.00	
	(c	* Final score:=	100.0	99.7 + 0.4 = 100	
		*Unless wetland is a complex with isolated portions (see above).			
		Flood Attenuation Score (maximum l00 points)			100

Water Quality Improvement Calculations:

3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
x	All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**

Calculation of WIF is based on the fractional area (FA) of each site type
that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)	Fractional Area				
FA of isolated wetland	0.000	x	0.5	=	0.000
FA of riverine wetland	0.675	x	1	=	0.675
FA of palustrine wetland with no inflow	0.325	x	0.7	=	0.228
FA of palustrine wetland with inflows		x	1	=	0.000
FA of lacustrine on lake shoreline		x	0.2	=	0.000
FA of lacustrine at lake inflow or outflow		x	1	=	0.000
			Sub Total:		0.902
			Sum (WIF cannot exceed 1.0)		0.90

Step 3: Determination of catchment land use factor (LUF)
(Choose the first category that fits upstream landuse in the catchment.)

1)		Over 50% agricultural and/or urban	1.0
2)	0.8	Between 30 and 50% agricultural and/or urban	0.8
3)		Over 50% forested or other natural vegetation	0.6
		LUF (maximum 1.0)	0.80

Step 4: Determination of pollutant uptake factor (PUT)

Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

	Fractional Area				
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.57	x	0.75	=	0.43
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	0.43	x	1	=	0.43
FA of wetland with little or no vegetation (u)		x	0.5	=	0.00
Sum (PUT cannot exceed 1.0)					0.86

Ground Water Discharge Calculations:

3.2.3 GROUNDWATER DISCHARGE

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge					
	None to Little		Some		High	
Wetland type	1) Bog = 0	0	2) Swamp/Marsh = 2	2	3) Fen = 5	
Topography	1) Flat/rolling = 0		2) Hilly = 2	0	3) Steep = 5	
Wetland Area:	Large (>50%) = 0	0	Moderate (5-50%) =	0	Small "5%) = 5	
Upslope		0	2	0		
Catchment Area		0				
Lagg Development	1) None found = 0	0	2) Minor = 2	0	3) Extensive = 5	
Seeps	1) None = 0	0	2) = or < 3 seeps = 2	0	3) > 3 seeps = 5	
Surface marl deposits	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Iron precipitates	1) None = 0	0	2) = or < 3 sites = 2	0	3) > 3 sites = 5	
Located within 1 km	N/A = 0	0	N/A = 0	0	Yes = 10	
of a major aquifer				0		
Totals		0		2		0

(Scores are cumulative maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 2

Catchment Area Map

North Burgess

Catchment Area

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

August 9, 2010
Project No: NRSI-1142
UTM Zone 18, NAD 83
Scale: 1:25,000 (at 11x17")

N

Legend

- Project Site
- Catchment Boundary
- Primary Road
- Secondary Road
- Resource / Recreation
- Watercourse Permanent
- Watercourse Intermittent
- Waterbody
- Wetland Area
- Wooded Area

Meters
0 500 1,000 1,500 2,000

NRSI_1142_CatchmentArea_25K_2010_08_09_SWM

North Burgess Solar Project

Interspersion Map

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

September 16, 2010
Project No: NRSI-1142
UTM Zone 18, NAD 83
Scale: 1:10,000 (at 11x17")

WETLAND #1
WETLAND #2
WETLAND #3
WETLAND #4
WETLAND #5
WETLAND #6
WETLAND #7
WETLAND #8

neM1 MAMM1-3
neM2 MAMM1
tsS1 SWTM3
hS2 SWDM2-1
tsS3 SWTM1-1
reM3 MAMM3-1
tsS4 SWTM1-1
neM21 MAMM1-16
neM4 MAMM1-16
tsS5 SWTM3-3
neM7 MAMM1-16
reM6 MASM1-1
reM20 MASM1-1
neM8 MASM1-14
tsS6 SWTM5-7
neM12 MASM1-14
tsS7 SWDM2-1
neM10 MASM1-15
neM13 MASM1-14
hS7 SWDM2-1
neM11 MASM1
neM5 MASM1-5
tsS9 SWTM3-3
neM14 MASM1-14
reM15 MASM1-1
fM16 SAF_1
tsS10 SWTM3-3
suM18 SAM_1
neM17 MASM1-14
tsS11 SWTM3-3
tsS12 SWTM3-6
neM18 MAMM3-1
hS21 SWDM2-1
tsS13 SWTM1-1

COW RD 2
MENZIES MONRO SIDERD
NOONAN SIDERD
ALLANS MILL RD
UPPER SCOTCH LINE
ADMIDDER RD
SCOTCH LINE
GRANTS CK
PIKE LK 4 ROUTE
PIKE LK 5 ROUTE
PIKE LAKE 11 ROUTE
STANLEY WATER RD
FERRIER RD
MACALEER SIDERD
MCLAREN PT
STANLEY RD
NARROWS LOCK RD
POWERS RD

N

Legend

- Project Site
- Ecological Land Classification
- (MAMM1) Graminoid Mineral Meadow Marsh Ecosite
- (MAMM1-16) Mixed Graminoid Graminoid Mineral Meadow Marsh Type
- (MAMM1-3) Reed-canary Grass Graminoid Mineral Meadow Marsh Type
- (MAMM3-1) Mixed Mineral Meadow Marsh Type
- (MASM1) Graminoid Mineral Shallow Marsh Ecosite
- (MASM1-1) Cattail Mineral Shallow Marsh Type
- (MASM1-14) Reed Canary Grass Mineral Shallow Marsh Type
- (MASM1-15) Giant Manna Grass Mineral Shallow Marsh Type
- (MASM1-5) Broad-leaved Sedge Mineral Shallow Marsh Type
- (SAF_1) Floating-leaved Shallow Aquatic Ecosite
- (SAM_1) Mixed Shallow Aquatic Ecosite
- (SWDM2-1) Black Ash Mineral Deciduous Swamp Type
- (SWTM1-1) Speckled Alder Mineral Deciduous Thicket Swamp Type
- (SWTM3) Willow Mineral Deciduous Thicket Swamp Ecosite
- (SWTM3-3) Slender Willow Mineral Deciduous Thicket Swamp Type
- (SWTM3-6) Mixed Willow Mineral Deciduous Thicket Swamp Type
- (SWTM5-7) Meadowsweet Mineral Deciduous Thicket Swamp Type
- Grid (380.91m x 380.91m)
- Primary Road
- Secondary Road
- Watercourse Permanent
- Waterbody
- Wetland Area
- Wooded Area

0 200 400 600 800 Meters

Project Team:

Member	Qualifications	Role
David Stephenson, M.Sc	Certified Wetland Evaluator Certified ELC Certified Arborist	• Project Management • Field Survey • Data Analysis, Evaluation, Reporting • Natural Heritage Assessment Guide Appendix C – for revised catchment area (air photo interpretation, interspersion mapping, and evaluation)
Barry Moss B.E.S.	Certified ELC	• Field Survey • Data Analysis • Evaluation
Megan Anevich B.E.S.	Field Biologist	• Field Survey
Cheryl-Anne Payette B.Sc FWT	Field Biologist	• Data Analysis • Evaluation
Shawn MacDonald, B.A.	GIS Mapping	• Mapping

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 10:30

Field #: 53 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: hS7 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S **Site Type:** R **Dominant Form:** h

% Open Water: 0 **ELC Code:** SWDN2-1

Photos: = 0188, 0189

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
(h) 35%	black ash, green ash
c 0	
dc,dh,ds 15%	
(ts) 20%	black ash, gray dogwood
(ls) 30%	narrow leaved spirea, gray dogwood
gc 20%	purple loosestrife, marsh fern, wild mint
(ne) 70%	carex lacustris, calamagrostis canadensis
be 0	
re 0	
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	GBHE, NLFR

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 10:45

Field #: 54 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: NCM11 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 40 **ELC Code:** MASM1

Photos: = 0190, 0191, 0192

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 2%	
ts 2%	speckled alder
ls 0	
gc 10%	purple loosestrife, jewelweed
(ne) 50%	reed canary grass, carex lasiocarpa, carex lacustris
be 2%	common buggenticles, mud bearing water nymphaea
re 10%	cattail, soft stemmed bulrush, dark green rush
ff 0	
f 20%	nymphaeides cordata
(su) 20%	nymphaeides cordata, coon-tail
m 0	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	WBNU, SOSP RUBY THROATED HUMMINGBIRD PAINTED TURTLE

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 12/2010 **Time (24h):** 10:00

Field #: 51 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: ISSb Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S **Site Type:** R **Dominant Form:** IS

% Open Water: 0 **ELC Code:** SWTH5-7

Photos: # 0184, 0185

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 0	
ts 5%	slender willow
(ls) 50%	narrow leaved spirea, slender willow red osier dogwood
gc 20%	purple loosestrife, grey's sedge, marsh fern
(ne) 30%	sp. emergents canadensis, carex aquatilis, Carex lacustris
be 0	
re 2%	cattail
ff 0	
f 0	
su 0	
m 10%	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 12/2010 **Time (24h):** 10:15

Field #: 52 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: +S S8 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S **Site Type:** R **Dominant Form:** +S

% Open Water: 0 **ELC Code:** SWDM2-1

Photos: # 0186, 0187

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 15%	black ash, green ash, bur oak
c 0	
dc,dh,ds 20%	
(ts) 70%	black ash green ash gray dogwood
(ls) 30%	gray dogwood, narrow leaved spirea, black ash
gc 5%	purple loosestrife, marsh fern
(ne) 60%	carex lacustris, m. canadensis
be 0	
re 0	
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	PIWO

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 11/2010 **Time (24h):** 8:30

Field #: 27 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: re M3 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** re

% Open Water: 5% **ELC Code:** MAMM3-1

Photos: #0138, 0139, 0142

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	1%
ts	0
ls	10% red osier dogwood, slender willow, speckled alder
(gc)	30% purple loosestrife, canada goldenrod, joe pye weed
(ne)	25% fox sedge, rice cut grass, narrow-leaved cattail, bur-reed
be	1% common arrowhead
(re)	35% dark green bulrush, cattail
ff	0
f	1% duckweed, water-soldier
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	AMGO, YEWA BROWN WATER SNAKE NLFR

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 11/2010 **Time (24h):** 8:50

Field #: 28 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: ts SS Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** R **Dominant Form:** ts

% Open Water: 0 **ELC Code:** SWTH1-1

Photos: #0140, 0141

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	2%
c	0
dc,dh,ds	0
(ts)	80% slender willow, speckled alder, trembling aspen
ls	15% slender willow, speckled alder
gc	5% purple loosestrife
ne	10% reed canary grass, fox sedge
be	0
re	5% dark green bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	AMGO, BLJA

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 9:10

Field #: 29 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: ~~S~~ SH **Wind Speed & Direction:** 1-W **Cloud %:** 5

Wetland Type: S **Site Type:** P **Dominant Form:** ~~S~~

% Open Water: 0 **ELC Code:** SWTM3-3

Photos: # 0143

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	10 % ~~trembling~~ aspen white elm
c	0
dc,dh,ds	0
(ts)	70 % slender willow red osier dogwood green ash
ls	20 % slender willow, red osier dogwood narrow leaved spirea
(gc)	30 % purple loosestrife
(ne)	30 % reed canary grass, tox sedge carex lupulina
be	0
re	15 % dark green bulrush, scirpus cyperinus
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	WOFL, BCCH

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 9:30

Field #: 30 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: NCM2 **Wind Speed & Direction:** 1-W **Cloud %:** 5

Wetland Type: M **Site Type:** P **Dominant Form:** NC

% Open Water: 0 **ELC Code:** MAMM1

Photos: # 0144, 0145

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
(gc)	30 % purple loosestrife, canada thistle
(ne)	60 % smooth brome, tox sedge, path rush
be	0
(re)	25 % cattail, dark green bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE * heavily grazed by cattle	SOSP

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 11:30

Field #: 57 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: NEN13 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 10% **ELC Code:** MASN1-14

Photos: ± 0198

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	1% green ash
c	0
dc,dh,ds	0
ts	0
ls	10% slender willow
gc	20% purple loosestrife, field horsetail
(ne)	80% reed canary grass, fox sedge, carex disperma
be	0
re	5% dark green bulrush
ff	
f	2% duckweed, lemnoideae cordata
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 11:45

Field #: 58 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: NEN14 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** NE

% Open Water: 0 **ELC Code:** MASN1-14

Photos: ± 0199

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	5% speckled alder, green ash
ls	10% gray dogwood, green ash, narrow leaved spirea
gc	10% purple loosestrife, northern bugleweed, goldenrod
(ne)	70% reed canary grass, fox sedge
be	2% bur-b bearing water hemlock
re	10% cattail
ff	0
f	5%
su	5%
m	0

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

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12 / 2010 **Time (24h):** 11 00

Field #: 55 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: NCM12 Wind Speed & Direction: L-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** NC

% Open Water: 0 **ELC Code:** MASM1-14

Photos: # 0193

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	2% white elm
c	0
dc,dh,ds	0
ts	0
ls	0
gc	5% purple loosestrife, cinquefoil, tufted vetch
(ne)	95% reed canary grass
be	0
re	2% dark green bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12 / 2010 **Time (24h):** 11:15

Field #: 56 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: +SS9 Wind Speed & Direction: L-W Cloud %: 60

Wetland Type: S **Site Type:** P **Dominant Form:** +S

% Open Water: 50% **ELC Code:** SWTN3-3

Photos: # 0194, 0195, 0196, 0197

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	5%
(ts)	40% slender willow
(ls)	25% slender willow, narrow leaved spirea
gc	5% purple loosestrife, sensitive fern, northern bugleweed
(ne)	25% carex crinita, reed canary grass, carex elongata
be	0
re	5% cattail
ff	0
f	30% lemna minor, cornuta
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	RWBL, YEWA, SWSP

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 8:50

Field #: 47 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: ncMA9 Wind Speed & Direction: L-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 40 **ELC Code:** MASM1-5

Photos: # 0176, 0177

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
gc	2% purple loosestrife, canada goldenrod
(ne)	45% carex lacustris, carex lasiocarpa, reed canary grass, swamp loosestrife
be	15% common arrowhead, bur-reed, water hemlock, bur-reed
re	10% cattail, soft-stemmed bulrush
ff	5% duckweed
(f)	25% nymphaea odorata
(su)	25% nymphaea odorata, coontail
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	AMERICAN BITTERN GBHE, GRFR, TRES, AMGO

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 9:10

Field #: 48 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: +SSB Wind Speed & Direction: L-W Cloud %: 60

Wetland Type: S **Site Type:** R **Dominant Form:** ts

% Open Water: 0 **ELC Code:** SWTM3-3

Photos: # 0178, 0180

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	1% green ash, white elm
c	0
dc,dh,ds	0
(ts)	60% slender willow, speckled alder, gray dogwood
ls	20% slender willow, narrow leaved spirea, gray dogwood
gc	10% purple loosestrife, jap pye weed
(ne)	40% carex lacustris, reed canary grass, carex lasiocarpa
be	0
re	2% cattail
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	RED TAILED HAWK ANGO BARN SWALLOW

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 9:30

Field #: 49 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: RCM20 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** rc

% Open Water: 2 % **ELC Code:** MASM1-1

Photos: # 0179 0181

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
gc	10% purple loosestrife, Mary's bentgrass
(ne)	40% carex lacustris, reed canary grass
be	10% common beggarticks, wild bearing water hemlock, water horsetail
(re)	30% cattail, sweet flag
ff	0
f	0
su	1% Nymphaea odorata
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	MUSKRAT, RNSL

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 9:45

Field #: 50 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: RCM10 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** rc

% Open Water: 2 % **ELC Code:** MASM1-15

Photos: # 0182 0183

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
gc	5% swamp milkweed, purple loosestrife, jewel weed
(ne)	95% Typha latifolia, carex lacustris, reed canary grass
be	1% nodding smartweed
re	2% cattail
ff	1% duckweed
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 11/2010 **Time (24h):** 14:00

Field #: 45 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: NCM7 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 0 **ELC Code:** MANM1-16

Photos: ± 0178

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 0	
ts 0	
ls 0	
gc 25%	joe pye weed, purple loosestrife, field horsetail
(ne) 75%	carex lasiocarpa, reed canary grass
be 0	
re 0	
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

AMGO, cloudless sulphur

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAN, MA

Date: AUG 12/2010 **Time (24h):** 8:30

Field #: 46 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: NCM8 Wind Speed & Direction: 1-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 0 **ELC Code:** MASM1-14

Photos: ± 0174, 0175

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 0	
ts 0	
ls 10%	red osier dogwood
gc 10%	purple loosestrife, canada knotweed
(ne) 80%	reed canary grass, carex lasiocarpa
be	
re	
ff	
f	
su	
m	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 13:40

Field #: 43 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: hS24 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** R **Dominant Form:** h

% Open Water: 5% **ELC Code:** SWDM2-1

Photos: # 0169, 0170

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
(h) 80%	white elm, black ash, green ash
c 0	
dc,dh,ds 0	
(ts) 40%	white elm, black ash, speckled alder
ls 10%	white elm
(gc) 50%	jewelweed, sensitive fern, marsh fern
ne 0	
be 0	
re 0	
ff 0	
f 0	
su 0	
m 15%	mniaceae sp

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

GRFR, BCCH

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: L=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 13:50

Field #: 44 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: tsS13 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** R **Dominant Form:** ts

% Open Water: 15% **ELC Code:** SWTM1-1

Photos: # 0171, 0172

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 5%	
(ts) 50%	speckled alder, salix bebbiana, white elm
(ls) 30%	speckled alder, narrow leaved spirea
(gc) 30%	purple loosestrife, marsh fern, joe pye weed
(ne) 40%	fox sedge, reed canary grass
be 2%	common arrowhead, blue flag iris
re 5%	cattail
ff 0	
f 10%	nymphaeaceae cordata
su 2%	nymphaeaceae cordata
m	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

MONARCH

SAR observations must also include a specific UTM location.

Forms: h=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: L=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 12 20

Field #: 39 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: +s S12 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** R **Dominant Form:** +s

% Open Water: 50% **ELC Code:** SWTM3-6

Photos: 0162, 0163

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	2% white elm
c	0
dc,dh,ds	2%
(ts)	30% sallow species, speckled alder, sp > diervilla
ls	10% speckled alder, sallow species, slender willow
gc	0
ne	0
be	10% water plantain, water arrowhead
(re)	25% cattail
ff	0
f	2% floating arrowhead
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	GBHR WOOD DUCK

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 12:40

Field #: 40 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: NCN18 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** NC

% Open Water: 0 **ELC Code:** MAMM3-1

Photos: 0164, 0165

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	2%
ts	5% speckled alder
ls	5% speckled alder
(gc)	30% jewelweed, purple loosestrife
(ne)	40% reed canary grass
be	0
(re)	30% cattail
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	MONARCH

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Natural Resource Solutions Inc.

Aquatic, Terrestrial and Wetland Biologists

Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, NA

Date: AUG 11/2010 **Time (24h):** 13:00

Field #: 41 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: NCSM7 Wind Speed & Direction: L-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** NC

% Open Water: 35 % **ELC Code:** MASM1-14

Photos: # 0166

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	2% white pine
dc,dh,ds	1%
ts	15% slender willow
ls	5% slender willow, speckled alder
gc	10% jewelweed, purple loosestrife, bittersweet nightshade
(ne)	50% reed canary grass, rice cut grass
be	2% water plantain
re	0
ff	1% duckweed
f	8% nymphaeides cordata
su	20% nymphaeides cordata
m	0

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

GRFR, NLFR

GRAY TREE FROG

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, NA

Date: AUG 11/2010 **Time (24h):** 13:20

Field #: 42 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: SUM16 Wind Speed & Direction: L-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** SU

% Open Water: 70 % **ELC Code:** SAM-1

Photos: # 0167, 0168

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	1% red maple
c	0
dc,dh,ds	2%
ts	2% common elder, berry, black ash
ls	5% red osier dogwood, narrow leaved sp.
gc	5% jewelweed, purple loosestrife
ne	10% rice cut grass, reed canary grass
be	10% common arrowhead, water plantain, water parsnip
re	20% cattail, soft stemmed bulrush, juncus effusus
ff	0
f	10% nymphaeides cordata, spatterdock
(su)	40% nymphaeides cordata, coon-tail
m	0

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

PAINTED TURTLE

RED SQUIRREL

GRFR

EWPE

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAH, MA

Date: AUG 11/2010 **Time (24h):** 9:50

Field #: 31 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: ncM1 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 0 **ELC Code:** MAMM1-3

Photos: # 0146, 0147

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
gc	15% purple loosestrife, canada goldenrod
(ne)	70% reed canary grass
be	0
(re)	25% cattail, dark green bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):

* constructed swale

NONE

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAH, MA

Date: AUG 11/2010 **Time (24h):** 10:15

Field #: 32 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: hS2 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** P **Dominant Form:** h

% Open Water: 0 **ELC Code:** SWDM2-1

Photos: 0148, 0149

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
(h)	70% black ash green ash white elm
c	0
dc,dh,ds	5%
(ts)	40% common buckthorn, black ash
(ls)	30% common buckthorn, red osier dogwood, black ash
(gc)	60% sensitive fern, hog peanut, false nettle
ne	5% fox sedge
be	0
re	0
ff	0
f	0
su	0
m	50% Mniaceae sp.

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11 / 2010 **Time (24h):** 10:35

Field #: 33 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: reMb Wind Speed & Direction: NW Cloud %: 5

Wetland Type: M **Site Type:** R **Dominant Form:** re

% Open Water: 30 **ELC Code:** MASM1-1

Photos: # 0150, 0151, 0152, 0153

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	5% black ash
c	2% white cedar
dc,dh,ds	2%
ts	10% speckled alder, black ash
ls	10% speckled alder, white cedar
gc	15% purple loosestrife swamp milkweed
(ne)	25% reed canary grass, fox sedge, carex lupulina
be	10% arrowhead, common arrowhead, common burr reed
(re)	35% cattail, dark green bulrush, soft stemmed bulrush
ff	5% duckweed
f	15% white water lily, pumpkinseed sunfish
su	?
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	G34E

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11 / 2010 **Time (24h):** 10.50

Field #: 34 **Weather:** Precipitation: Temp (°C):

Map Code: reM21 Wind Speed & Direction: Cloud %:

Wetland Type: M **Site Type:** R **Dominant Form:** ne

% Open Water: 0 **ELC Code:** MAMM1-16

Photos: 0154

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
ts	0
ls	0
(gc)	30% purple loosestrife, canada goldenrod, common milkweed
(ne)	60% reed canary grass, timothy grass, soft rush
be	0
re	10% dark green bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	MONARCH

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 11 10

Field #: 35 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: reM3 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** P **Dominant Form:** re

% Open Water: 5 **ELC Code:** MAMM1-1

Photos: 0155

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 0	
ts 0	
ls 0	
gc 5%	purple loosestrife, jewelweed
(ne) 25%	fox sedge, reed canary grass
be 2%	water plantain
(re) 90%	cattail
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	RWBL, AMGO

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 11:30

Field #: 36 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: reM4 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: M **Site Type:** P **Dominant Form:** re

% Open Water: 0 **ELC Code:** MAMM1-10

Photos: 0156

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc,dh,ds 0	
ts 0	
ls 0	
(gc) 35%	purple loosestrife, common bedstraw, canada goldenrod
(ne) 60%	fox sedge, [illegible]
be 0	
re 40%	dark green bulrush, cattail
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	NLFR

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 11 50

Field #: 37 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: +SS11 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** P **Dominant Form:** -S

% Open Water: 0 **ELC Code:** SWTM3-3

Photos: 0157, 0158, 0159

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	10%
(ts)	35% slender willow, speckled alder, red osier dogwood
ls	10% slender willow, narrow leaved spirea, red osier dogwood
(gc)	30% purple loosestrife, common bedstraw, jewelweed
ne	5% reed canary grass
be	0
re	55% cattail
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	ANGO, SOSP, NOFL

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Wetland Vegetation Communities

Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 11/2010 **Time (24h):** 12:00

Field #: 38 **Weather:** Precipitation: NONE Temp (°C): 30

Map Code: +SS10 Wind Speed & Direction: 1-W Cloud %: 5

Wetland Type: S **Site Type:** P **Dominant Form:** +S

% Open Water: 10 **ELC Code:** SWTM3-3

Photos: 0160, 0161

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	0
(ts)	60% slender willow, salix bebbiana
(ls)	25% slender willow, S. bebbiana, narrow leaved spirea
(gc)	40% purple loosestrife, jewelweed, swamp buttercup
(ne)	25% reed canary grass, rice cut grass, bebbi rush
be	5% common arrowhead, water plantain, bulrush, water hemlock
re	5% cattail, duck green bulrush, soft stemmed bulrush
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	NLFR, GRCB GRFR

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 12 00

Field #: 59 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: rc M15 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** rc

% Open Water: 30 **ELC Code:** MASM1-1

Photos: # 0200, 0202

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 2%	black ash
c 0	
dc,dh,ds 0	
ts 0	
ls 0	
gc 5%	purple loosestrife, marsh bedstraw
(ne) 25%	carex crinita, carex lasiocarpa
be 10%	common arrowhead, bulb bearing water hemlock, swamp buttercup
(re) 50%	typha, salt stemmed bulrush
ff 2%	duckweed
f 10%	nymphoides cordata
(su) 25%	nymphoides cordata
m 0	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

GBHE, GRFR
ANGO, EADH

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM, MA

Date: AUG 12/2010 **Time (24h):** 12:15

Field #: 60 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: f M19 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: M **Site Type:** R **Dominant Form:** f

% Open Water: 80% **ELC Code:** SAF-1

Photos: # 201, 203

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 15%	white cedar
dc,dh,ds 30%	white cedar, black ash
ts 5%	grey dogwood, white elm, black ash
ls 0	
gc 2%	purple loosestrife, marsh bedstraw
ne 5%	carex crinita, carex lacustrinus, reed canary grass
be 5%	common arrowhead, swamp buttercup, bulb bearing water hemlock
re 5%	cattail
ff 5%	duckweed
(f) 40%	nymphoides cordata
(su) 30%	nymphoides cordata, cattail
m 0	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

NLFR

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: NORTH BURGESS **Project #:** 1142

Observer(s): BAM MA

Date: AUG 12/2010 **Time (24h):** 13:00

Field #: 61 **Weather:** Precipitation: NONE Temp (°C): 21

Map Code: +SS1 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S **Site Type:** P **Dominant Form:** +S

% Open Water: Ø **ELC Code:** SWTN 3

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	0
c	0
dc,dh,ds	10%
ts	60% SA, SB
ls	25% SA, SB, AP
gc	0
ne	0
be	0
re	0
ff	0
f	0
su	0
m	0

Rare Species (Local, Regional, Provincial):	Wildlife Notes:
NONE	NONE * wetland not visible from road

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

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Project Name: **Project #:**

Observer(s):

Date: **Time (24h):**

Field #: **Weather:** Precipitation: Temp (°C):

Map Code: Wind Speed & Direction: Cloud %:

Wetland Type: **Site Type:** **Dominant Form:**

% Open Water: **ELC Code:**

Photos:

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h	
c	
dc,dh,ds	
ts	
ls	
gc	
ne	
be	
re	
ff	
f	
su	
m	

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

SAR observations must also include a specific UTM location.

Forms: **h**=deciduous trees; **c**=coniferous trees; **dh, dc, ds**=dead trees/shrubs; **ts**=tall shrubs; **ls**=low shrubs; **gc**=ground cover; **ne**=narrow emergents; **be**=broad emergents; **f**=floating plants; **ff**=free-floating plants; **su**=submerged plants; **m**=mosses

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

Site Type: **L**=lacustrine; **P**=palustrine; **R**=riverine; **IS**=isolated

Appendix C

Natural Resource Solutions Inc.
Site Investigation Field Notes

1142 N. Burgess KSJ, MP Pg 1/2
May 13, 2011
Weather = Sunny, 85% cloud, 25°C, Wind 3

Incidentals
East. Chipmunk (Vo)
Gray tree frog (call)
White-tailed deer (Vo)
Gray squirrel (Black morph)
Red squirrel (Vo)
Porcupine (Vo)
Coyote (scat)
Am. Crow
Tennessee Warbler
Yellow-rumped Warbler
Blue Jay
Golden-winged Warbler (3 singing) (S)
Field Sparrow
Grouse
Pileated Woodpecker
Turkey Vulture
Baltimore Oriole
Am. Goldfinch
Blackburnian Warbler
Wild Turkey
Mallard

11:45 –
Green frog (call)
Beaver (dam)
Leopard frog (Vo)
Barn Swallow
Savannah Sparrow
Eastern Phoebe
Song Sparrow
Chipping Sparrow
Killdeer
RW Blackbird
Yellow Warbler
Am Robin
Red-tailed Hawk
E. Meadowlark (S)
Ovenbird
Black-and-white Warbler
Am. Redstart
Red-eyed Vireo
Yellow-bellied Sapsucker
Downy Woodpecker
B-C Chickadee
Wood Thrush
Ruby-T Hummingbird

Walking Snake Transects
S/ Western Woodlot 1145 - 1330

- along eastern edge = old fence line of piled rocks (no deep cracks)
photo 101-0006
UTM 18T 0396853, 4963380

Western Forest patches, edges 1330-1410

Rocky hill with some cracks/holes - none look easily deep enough, but hard to tell Photos
UTM 0396080, 4963447

Eastern open area 1410-1433

No snakes observed,

More incidentals
Can. Goose (Pair)
Tree Swallows

Golden-wing warblers
UTM 18T 396744, 4963338
18T 396204, 4963514

NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Gray Ratsnake Field Form

note: Transect spacing: 50m field, 20m forest

Project Name: North Burgess SF

Project #: 1142

Observer: M. Pope, K St. James

Date: May 13/11 (1145 - 1430 hrs)

Cloud Cover %: 85

Precipitation: none

Temperature °C: 25°C

Wind: 3 (south)

Transect Bearing: °E of N

Habitat Type: woodland, ag fields

woodland: 320°

ag field: 320°

Snake #	Time	UTM	Location of Snake	Notes
No	snakes	observed		

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