



# Memo

**Project No. 1142**

**To: Sean Male**

**From: David Stephenson**

**Date: June 21, 2011**

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

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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.

A handwritten signature in black ink, appearing to read "D. Stephenson", with a long horizontal line extending to the right.

David Stephenson, M.Sc.,  
Senior Biologist

**Work Cited**

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**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.



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

Characteristic/ Ecological Function	Evaluation Results	Scoring
<p><b>Actual Wetland Size (ha)</b></p>	<p><b>Wetland 1:</b> = 0.31ha Reed canary grass marsh (neM<sub>1</sub>)</p> <p><b>Wetland 2:</b> = 0.66ha Graminoid meadow marsh (neM<sub>2</sub>)</p> <p><b>Wetland 3:</b> = 13.13ha Willow thicket swamp (tsS<sub>1</sub>) Black ash swamp (hS<sub>2</sub>)</p> <p><b>Wetland 4:</b> = 27.34ha Meadow marsh (reM<sub>3</sub>) Speckled alder thicket swamp (tsS<sub>3</sub>) Slender willow thicket swamp (tsS<sub>4</sub>) Mixed graminoid meadow marsh (neM<sub>4</sub>) Cattail marsh (reM<sub>5</sub>) Cattail marsh (reM<sub>6</sub>) Mixed graminoid meadow marsh (neM<sub>7</sub>) Reed canary grass marsh (neM<sub>8</sub>) Broad-leaved sedge marsh (neM<sub>9</sub>) Slender willow thicket swamp (tsS<sub>5</sub>) Giant manna grass marsh (neM<sub>10</sub>) Meadowsweet Thicket Swamp (tsS<sub>6</sub>) Black ash swamp (hS<sub>7</sub>) Black ash swamp (tsS<sub>8</sub>) Graminoid marsh (neM<sub>11</sub>) Reed canary grass marsh (neM<sub>12</sub>) Cattail marsh (reM<sub>20</sub>) Mixed graminoid meadow marsh (neM<sub>21</sub>)</p> <p><b>Wetland 5:</b> = 4.73ha Slender willow thicket swamp (tsS<sub>9</sub>) Reed canary grass marsh (neM<sub>13</sub>) Reed canary grass marsh (neM<sub>14</sub>) Cattail marsh (reM<sub>15</sub>) Floating-leaved aquatic ecosite (fM<sub>19</sub>)</p> <p><b>Wetland 6:</b> = 4.60ha Slender willow thicket swamp (tsS<sub>10</sub>)</p>	

	<p>Slender willow thicket swamp (tsS<sub>11</sub>)</p> <p><b>Wetland 7:</b> = 3.17ha Mixed willow thicket swamp (tsS<sub>12</sub>) Speckled alder thicket swamp (tsS<sub>13</sub>) Reed canary grass marsh (neM<sub>17</sub>) Mixed meadow marsh (neM<sub>18</sub>)</p> <p><b>Wetland 8:</b> = 2.89ha Mixed shallow aquatic ecosite (suM<sub>16</sub>) Black ash swamp (hS<sub>24</sub>)</p> <p><b>Total : 56.52ha</b></p>																					
<b>Wetland Type</b>	<p>WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)</p> <table border="1"> <thead> <tr> <th></th> <th>Fractional Area</th> <th></th> <th>Score</th> </tr> </thead> <tbody> <tr> <td>Bog</td> <td></td> <td>x 3</td> <td>0.00</td> </tr> <tr> <td>Fen</td> <td></td> <td>x 6</td> <td>0.00</td> </tr> <tr> <td>Swamp</td> <td>0.57</td> <td>x 8</td> <td>4.56</td> </tr> <tr> <td>Marsh</td> <td>0.43</td> <td>x 15</td> <td>6.45</td> </tr> </tbody> </table> <p><b>Wetland type score (maximum 15 points)</b> <span style="border: 1px solid black; padding: 2px;">11</span></p> <p><b>Fractional Area of Wetland Types:</b></p> <p><b>Swamp:</b> <i>Swamp (ha)</i> Total ha = 32.22</p> <p>FA=32.22/56.52 =0.57</p> <p><b>Marsh:</b> <i>Marsh (ha)</i> Total ha = 24.30</p> <p>FA =24.30/56.52 =0.43</p>		Fractional Area		Score	Bog		x 3	0.00	Fen		x 6	0.00	Swamp	0.57	x 8	4.56	Marsh	0.43	x 15	6.45	11
	Fractional Area		Score																			
Bog		x 3	0.00																			
Fen		x 6	0.00																			
Swamp	0.57	x 8	4.56																			
Marsh	0.43	x 15	6.45																			
<b>Site Type</b>	<p>Palustrine: 0.3354*2 =0.671</p> <p>Riverine: 0.6746*4 =2.698</p>	3																				
<b>Vegetation Communities</b>	<p>Number of communities with 1-3 forms: 30 = 17.5 pts</p> <p>Number of communities with 4-5 forms: 4 = 6.5</p>	24																				

<b>Proximity to other Wetlands</b>	Hydrologically connected by surface water to other wetlands (same dominant wetland type), within 0.5 km	8
<b>Interspersion</b>	See Appended Interspersion Map. Total vertical: 37 Total horizontal: 38 Total = 75	12
<b>Open Water Types</b>	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
<b>Flood Attenuation (total)</b>	Details of Flood Attenuation calculations are provided below in Table 1.	100
<b>Water Quality Improvement (Total)</b>	Details of water quality improvement calculations are provided below Table 1.	
<b>Shoreline Erosion Control</b>	<b>Step 1:</b> If any part of the wetland is riverine or lacustrine (proceed to Step 2) = Yes, therefore go to step 2 <b>Step 2:</b> Choose the one characteristic that best describes the shoreline vegetation = Emergent vegetation	8
<b>Groundwater Recharge (Total)</b>	Details of Groundwater Recharge calculations are provided below in Table 1.	5
<b>Species Rarity (Total)</b>	No rare species noted during 2010 surveys within the wetland. <b>Section</b> <b>4.1.2.1 Breeding Habitat for Endangered or Threatened Species =</b> none <b>4.1.2.2 Traditional Migration or Feeding Areas for an Endangered or Threatened Species =</b> none <b>4.1.2.3 and 4.1.2.4 Provincially Significant Plant and Animal Species =</b> none <b>4.1.2.5 Regionally Significant Species =</b> none <b>4.1.2.6 Locally Significant Species =</b> none <b>4.1.2.7 Species of Special Status =</b> none	0
<b>Significant Features and Habitats (Total)</b>	<b>Section:</b> <b>4.2.1 Colonial Waterbirds =</b> none <b>4.2.2 Winter Cover for Wildlife =</b> none <b>4.2.3 Waterfowl Staging and/or Molting Area =</b> none <b>4.2.4 Waterfowl Breeding =</b> none	0
<b>Fish Habitat (Total)</b>	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	



	<p>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, <i>Calamagrostis canadensis</i>), 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.</p> <p>The smaller tributaries of this main tributary include wetland habitats which may provide similar seasonal and/or permanent fish habitat functions.</p>	
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**Flood Attenuation Calculations:**

**HYDROLOGICAL  
3.0 COMPONENT**

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**FLOOD  
3.1 ATTENUATION**

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If the wetland is a complex including isolated wetlands, apportion the 100 points according to area. For example if 10 ha of a 100 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 = 2.00 (maximum allowable factor = 1)	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 attennation factor: (c) x 10 = 10.0 (maximum allowable factor = 1)	1.00

**Step 4:**

Calculation of final score

(a)	Wetlands on large lakes or major rivers		0
(b)	Wetland entirely isolated		100
(b)	All other wetlands --calculate as follows:		
	* Complex Formula - Isolated		
(c)	portion	<u>100.0</u>	1
	Initial Score		100 *
	Upstream detention factor (DF) (Step 2)		<u>1.00</u>
	Wetland attenuation factor (AF) (Step 3)		<u>1.00</u>
	Final score: [(DF + AF)/2] x Initial score		<u>100.00</u>
	=		99.7 + 0.4 =
(c)	* Final score:=	<u>100.0</u>	100

\*Unless wetland is a complex with isolated portions (see above).

**Flood Attenuation Score (maximum 100 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 dominant 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
			<b>Sum (PUT cannot exceed 1.0)</b>		<b>0.86</b>

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

(Scores are cumulative maximum score 30 points)

**Groundwater Discharge Score (maximum 30 points)**

**2**



# North Burgess

## Catchment Area

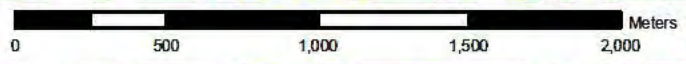
 **NATURAL RESOURCE SOLUTIONS INC.**  
Aquatic, Terrestrial and Wetland Biologists

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

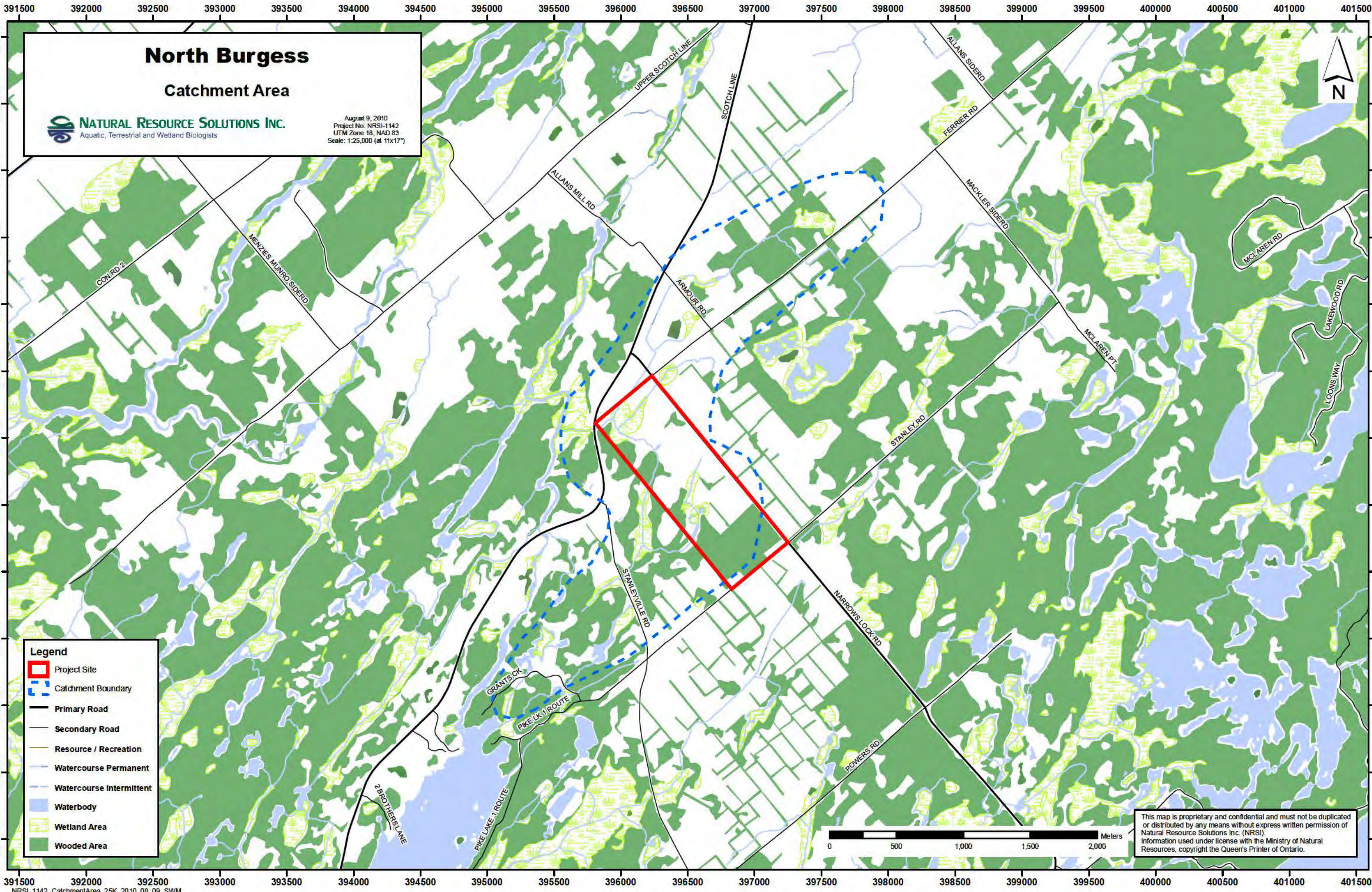


**Legend**

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



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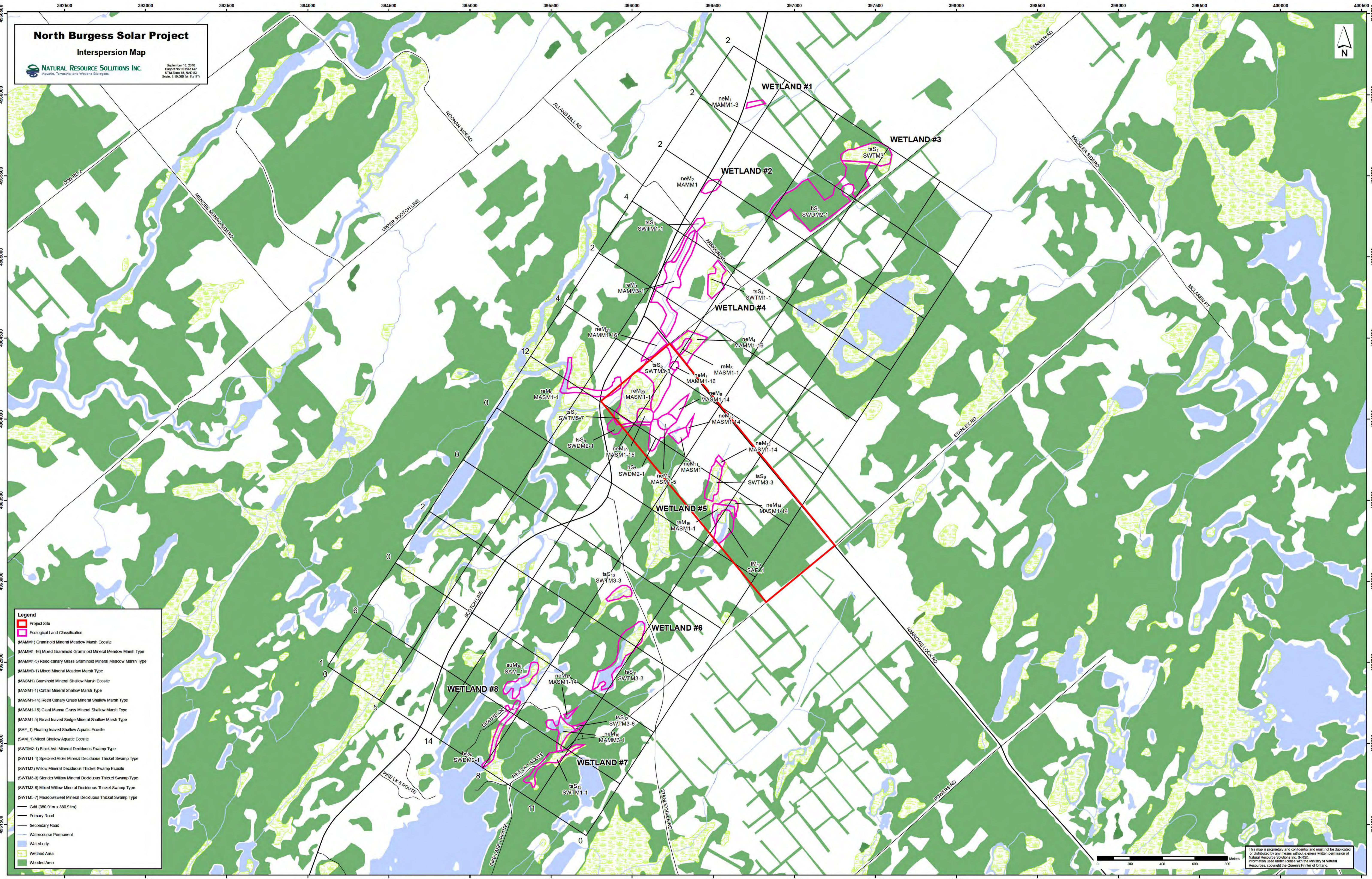




**North Burgess Solar Project**  
**Interspersion Map**

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 Aquatic, Terrestrial and Wetland Biologists

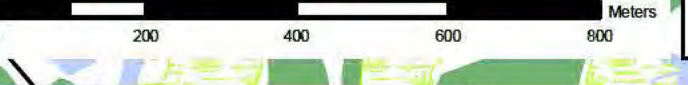
September 16, 2010  
 Project No: NRS1142  
 UTM Zone 18, NAD 83  
 Scale: 1:10,000 (at 11x17)



**Legend**

- Project Site
- Ecological Land Classification
- (MAMM1) Graminoid Mineral Meadow Marsh Ecosite
- (MAMM1-3) Mixed Graminoid Mineral Meadow Marsh Type
- (MAMM1-16) 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 Mannia 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

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**Project Team:**

<b>Member</b>	<b>Qualifications</b>	<b>Role</b>
David Stephenson, M.Sc	Certified Wetland Evaluator Certified ELC Certified Arborist	<ul style="list-style-type: none"><li>• Project Management</li><li>• Field Survey</li><li>• Data Analysis, Evaluation, Reporting</li><li>• Natural Heritage Assessment Guide Appendix C – for revised catchment area (air photo interpretation, interspersed mapping, and evaluation)</li></ul>
Barry Moss B.E.S.	Certified ELC	<ul style="list-style-type: none"><li>• Field Survey</li><li>• Data Analysis</li><li>• Evaluation</li></ul>
Megan Anevich B.E.S.	Field Biologist	<ul style="list-style-type: none"><li>• Field Survey</li></ul>
Cheryl-Anne Payette B.Sc FWT	Field Biologist	<ul style="list-style-type: none"><li>• Data Analysis</li><li>• Evaluation</li></ul>
Shawn MacDonald, B.A.	GIS Mapping	<ul style="list-style-type: none"><li>• Mapping</li></ul>





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Aquatic, Terrestrial and Wetland Biologists

**Wetland Vegetation Communities**

Project Name: NORTH BURGESS

Project #: 1142

Observer(s): SAM HA

Date: A06 12/10/00 Time (24h): 10:30

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

Map Code: H57 Wind Speed & Direction: 2-WS Cloud %: 60

Wetland Type: S Site Type: R Dominant Form: H

% Open Water: 0 ELC Code: SWDU2-1

Photos: = 0188, 0189

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

- h 35% bare soil green air
- c 0
- dc, dh, ds 15%
- ts 20% black air green bogwood
- ls 20% narrow leaved sedge green bogwood
- gc 20% purple rosette sedge green white silt
- ne 30% carex lacustris calamagrostis canadensis
- be 0
- re 0
- ff 0
- f 0
- su 0
- m 0

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

NONE

GRUE, WLFER

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: WESTH

Project #: 1142

Observer(s): SAM HA

Date: A06 12/10/00 Time (24h): 10:45

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

Map Code: NCH11 Wind Speed & Direction: 2-WS Cloud %: 60

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

% Open Water: 40 ELC Code: HQSU1

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% species rich
- ls 0
- gc 10% purple leaved sedge green bogwood
- ne 50% reed canopy grass sedge tallgrass & water lilies
- be 2% common boggrass water bearing water lilies
- re 10% reed east stream sedge green sedge
- ff 0
- f 20% sedge sedge sedge
- su 20% sedge sedge sedge
- m 0

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

NONE

WBNV, SOSP  
EIGHT THREATENED MOUNTAINBILLS  
PAVING 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

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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): BAN, MA

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

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

Map Code: 155B Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S Site Type: R Dominant Form: 1S

% Open Water: 0 ELC Code: SATH2-2

Photos: ± 0184, 0185

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

h 0  
c 0  
dc, dh, ds 0  
ts 5%  
gc 20%  
ne 80%  
be 0  
re 2+/  
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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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS Project #: 1142

Observer(s): BAN, MA

Date: AUG 2/2010 Time (24h): 10:15

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

Map Code: 455B Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: S Site Type: R Dominant Form: 4S

% Open Water: 0 ELC Code: SWDH2-1

Photos: ± 0186, 0187

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

h 15%  
c 0  
dc, dh, ds 20%  
ts 50%  
gc 5%  
ne 60%  
be 0  
re 0  
ff 0  
f 0  
su 0  
m 0

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

NONE

PIVBO

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



**Wetland Vegetation Communities**

Project #: 1142

Project Name: NORTH BURGESS

Observer(s): BAW, WA

Date: Aug 11/2010

Time (24h): 8:30

Field #: 27

Weather: Precipitation: NONE

Temp (°C): 30

Map Code: re H3

Wind Speed & Direction: 1-W

Cloud %: 5

Wetland Type: N

Site Type: R

Dominant Form: re

% Open Water: 5%

ELC Code: HAWB-1

Photos: #0138, #038, #042

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 0	
c 0	
dc, dh, ds 10%	
ts 0	
ls 10% red alder stand, almost pure spruce over	
is 10% spruce stands, some spruce over	
gc 30% pure water, some ground for the wood	
ne 15% for sedge on a slightly elevated area, some	
be 10% narrow emergent	
re 35% deep green shrubs	
ff 0	
f 10% deep green shrubs	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

AW 50, VERA  
BROWN WATER SNAKE  
NLER

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



**Wetland Vegetation Communities**

Project #: 1142

Project Name: NORTH BURGESS

Observer(s): BAW, WA

Date: Aug 11/2010

Time (24h): 8:30

Field #: 28

Weather: Precipitation: NONE

Temp (°C): 30

Map Code: TS S5

Wind Speed & Direction: 1-W

Cloud %: 5

Wetland Type: S

Site Type: R

Dominant Form: TS

% Open Water: 0

ELC Code: SWTH-1

Photos: #0140, #041

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 10%	
c 0	
dc, dh, ds 0	
ts 80%	
ls 10% sedge stands, sedge over	
is 10% sedge stands, sedge over	
gc 5% pure water, some sedge	
ne 10% deep green grass, for sedge	
be 0	
re 5% deep green shrubs	
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):

NONE

Wildlife Notes:

AW 60, BLTA

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





**Wetland Vegetation Communities**

Project Name: NOBTH BURGESS Project #: 1142

Observer(s): SAVA, MH

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

Field #: 2A Weather: NOVE Temp (°C): 30

Map Code: 2S4 Wind Speed & Direction: 1-05 Cloud %: 5

Wetland Type: S Site Type: P Dominant Form: FS

% Open Water: 0 ELC Code: SUTH3-3

Photos: # 0143

Forms % (Circle those >25%)

Species (dominant species, secondary species, present species)

h 10% Scattered along water edge  
c 0  
dc,dh,ds 0  
ls 70% Slender willow for all the ground, open area  
is 20% slender willow, for all the ground, open area  
gc 30% slender willow for edge area  
ne 30% slender willow for edge area  
be 0  
re 15% dark green vegetation, various species  
ff 0  
f 0  
su 0  
m 0

Rare Species (Local, Regional, Provincial): None 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



**Wetland Vegetation Communities**

Project Name: NOBTH BURGESS Project #: 1142

Observer(s): SAVA, MH

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

Field #: 30 Weather: NOVE Temp (°C): 30

Map Code: 2S4 Wind Speed & Direction: 1-05 Cloud %: 5

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

% Open Water: 0 ELC Code: MAWA

Photos: # 0144, 0145

Forms % (Circle those >25%)

Species (dominant species, secondary species, present species)

h 0  
c 0  
dc,dh,ds 0  
ls 0  
is 0  
gc 30% slender willow, scattered  
ne 60% slender willow, scattered  
be 0  
re 25% dark green vegetation  
ff 0  
f 0  
su 0  
m 0

Rare Species (Local, Regional, Provincial): None Wildlife Notes: Some

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: DOETH BURGESS Project #: 1142

Observer(s): BAN, HA

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

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

Map Code: NCH14 Wind Speed & Direction: 2-WS Cloud %: 60

Wetland Type: H Site Type: E Dominant Form: NE

% Open Water: 10% ELC Code: HACH14

Photos: ± 0198

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

h 1% green elm
c 0
dc,dh,ds 0
ts 0
ls 10% slender a. oak
gc 10% single inviscerite, field horsetail
ne 80% weed canopy grass. Fox sedge, reed, diandra
be 0
re 5% dark green bulrush
ff 0
f 2% floating plant
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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Wetland Vegetation Communities

Project Name: NOETH BURGESS Project #: 1142

Observer(s): BAN, HA

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

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

Map Code: NCH14 Wind Speed & Direction: 2-WS Cloud %: 60

Wetland Type: H Site Type: E Dominant Form: NE

% Open Water: 0 ELC Code: HACH14

Photos: ± 0199

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

h 0
c 0
dc,dh,ds 0
ts 5% reed canopy over grasses
ls 10% gray dogwood, green oak, narrow leaved sycamore
gc 10% purple inviscerite, narrow leaved sycamore
ne 70% reed canopy grass, fox sedge
be 2% bulb bearing water hemlock
re 10% reed
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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**Wetland Vegetation Communities**

Project Name: NOETH BURGESS

Project #: 1142

Observer(s): BAH, MA

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

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

Map Code: N6U12 Wind Speed & Direction: 2-3 Cloud %: 60

Wetland Type: M Site Type: 2 Dominant Form: ne

% Open Water: 0 ELC Code: MASHN-14

Photos: ± 093

Forms % (Circle those >25%)

Species (dominant species, secondary species, present species)

h 2% Utricularia  
c 0  
dc, dh, ds 0  
ts 0  
ls 0  
gc 5% Purple loosestrife, yellowed, silvered, water  
ne 95% reed, narrow grass  
be 0  
re 2% dark green bulrush  
ff 0  
f 0  
su 0  
m 0

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: NOETH BURGESS

Project #: 1142

Observer(s): BAH, MA

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

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

Map Code: F6S9 Wind Speed & Direction: 2-3 Cloud %: 60

Wetland Type: S Site Type: P Dominant Form: +3

% Open Water: 50% ELC Code: SWTM3-3

Photos: ± 014 0195, 0196 0197

Forms % (Circle those >25%)

Species (dominant species, secondary species, present species)

h 0  
c 0  
dc, dh, ds 5%  
ts 40% Scirpus palustris  
ls 95% Scirpus palustris, narrow reed, water  
gc 5% Purple loosestrife, yellowed, silvered, water  
ne 25% reed, narrow grass, narrow sedge  
be 0  
re 5% reed  
ff 0  
f 30% Utricularia  
su 0  
m 0

Rare Species (Local, Regional, Provincial):

NONE

RW3 L, YENVA, SWGD

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 SURGESS

Project #: 142

Observer(s): BAH, MA

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

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

Map Code: R4M20 Wind Speed & Direction: 2-10 Cloud %: 60

Wetland Type: U Site Type: R Dominant Form: re

% Open Water: 2% ELC Code: MASH-1

Photos: ± 079 0181

Forms % (Circle those >25%) Species (dominant species, secondary species, present species)

h 0 c 0 dc,dh,ds 0 ls 0 gc 10% purple aster re mostly covered re 40% cork locustrine tree canopy grass be 10% narrow emergent bulb bearing water hemlock, horsetail re 30% cork aster etc ff 0 f 0 su 1% blue shaded cordata m 0

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

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 SURGESS

Project #: 142

Observer(s): BAH, MA

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

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

Map Code: R4M10 Wind Speed & Direction: 2-10 Cloud %: 60

Wetland Type: U Site Type: R Dominant Form: re

% Open Water: 2% ELC Code: MASH-15

Photos: ± 0181 0183

Forms % (Circle those >25%) Species (dominant species, secondary species, present species)

h 0 c 0 dc,dh,ds 0 ls 0 gc 5% common narrow leaf purple aster re 95% tall narrow grass cork lacustrine broad emergent be 1% narrow emergent re 2% cork aster ff 1% duckweed f 0 su 0 m 0

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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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS Project #: 1142

Observer(s): BAN, HA

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

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

Map Code: NE47 Wind Speed & Direction: 1-00 Cloud %: 5

Wetland Type: U Site Type: R Dominant Form: ne

% Open Water: 0 ELC Code: MASH-16

Photos: = 0173

Forms % (Circle those >25%) Species (dominant species, secondary species, present species)

h    
c    
dc,dh,ds    
ts    
ls    
gc  25% yr. pyr. weed, square leaved, field horsetail   
ne  75% narrow leaved, reed canopy grass   
be    
re    
ff    
f    
su    
m

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

NONE

AM601 observed in bank

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): BAN, HA

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

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

Map Code: NE48 Wind Speed & Direction: 1-00 Cloud %: 60

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

% Open Water: 0 ELC Code: MASH-14

Photos: = 024, 025

Forms % (Circle those >25%) Species (dominant species, secondary species, present species)

h    
c    
dc,dh,ds    
ts    
ls  10% red alert meadow   
gc  10% purple loosestrife meadow   
ne  80% reed canopy grass meadow   
be    
re    
ff    
f    
su    
m

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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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS

Project #: 1142

Observer(s): BAW, HR

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

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

Map Code: K524 Wind Speed & Direction: 1-0 Cloud %: 5

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

% Open Water: 5% ELC Code: SW242-1

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 green ash
- ls 10% white elm
- gc 50% greenhead sedge fern marsh fern
- ne 0
- be 0
- re 0
- ff 0
- f 0
- su 0
- m 15% non-vascular

Rare Species (Local, Regional, Provincial):  
NONE

Wildlife Notes:  
GERR, SCCH

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): BAW, HR

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

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

Map Code: K524 Wind Speed & Direction: 1-0 Cloud %: 5

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

% Open Water: 15% ELC Code: SW241-1

Photos: ± 0171, 0172

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

- h 0
- c 0
- dc, dh, ds 5%
- ts 50% spiced cedar, salt herbicide, white elm
- ls 20% spiced cedar narrow leaved birch
- gc 30% purple loosestrife marsh fern green wood
- ne 40% fox sedge, reed, marsh grass
- be 2% common arrowweed, blue flag
- re 1% cattail
- ff 0
- f 10% nympheoid cattail
- su 2% nympheoid cattail
- m

Rare Species (Local, Regional, Provincial):  
NONE

Wildlife Notes:  
MOWBCH

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 BUEGESS

Project #: 1142

Observer(s): SAM WA

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

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

Map Code: 45512 Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: S Site Type: R Dominant Form: TS

% Open Water: 50% ELC Code: CNTG-6

Photos: 0102, 0103

Forms % (Circle those ≥25%)

Species (dominant species, secondary species, present species)

h 2% *Salix purpurea*  
c 0  
dc, dh, ds 2%  
ts 30% *Solidago nemoralis* appeared over 10% *Aster*  
ls 10% *Sparganium angustifolium* *Sagittaria arifolia* *Utricularia*  
gc 0  
ne 0  
be 10% *Utricularia* *Sagittaria* *Utricularia*  
re 35% *Carex*  
ff 0  
f 2% *Phragmites australis*  
su 0  
m 0

Rare Species (Local, Regional, Provincial):

Wildlife Notes:  
GC=2  
WOOD DUCK  
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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**Wetland Vegetation Communities**

Project Name: NORTH BUEGESS

Project #: 1142

Observer(s): SAM WA

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

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

Map Code: NEN18 Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: H Site Type: R Dominant Form: NE

% Open Water: 0 ELC Code: NAUG-1

Photos: 0104, 0105

Forms % (Circle those ≥25%)

Species (dominant species, secondary species, present species)

h 0  
c 0  
dc, dh, ds 2%  
ts 5% *Solidago nemoralis* *Aster*  
ls 5% *Sparganium angustifolium* *Sagittaria arifolia* *Utricularia*  
gc 30% *Juncus roemerianus* *Sagittaria arifolia* *Utricularia*  
ne 40% *Utricularia* *Sagittaria* *Utricularia*  
be 0  
re 30% *Carex*  
ff 0  
f 0  
su 0  
m 0

Rare Species (Local, Regional, Provincial):

Wildlife Notes:  
NONE  
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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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS Project #: 1142

Observer(s): BAM, HA

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

Field #: 41 Weather: precipitation: none Temp (°C): 30

Map Code: neup Wind Speed & Direction: 1-100 Cloud %: 5

Wetland Type: H Site Type: R Dominant Form: ne

% Open Water: 35% ELC Code: UASW1-14

Photos: ± 0166

Forms % (Circle those >25%)

Species (dominant species, secondary species, present species)

h 0  
c 2% white pine  
dc, dh, ds 1%  
ts 1% elder sycam  
ls 5% elder sycam, scattered oak  
gc 10% grassland prairie, watercress, butterfly, dogwood, shade  
ne 50% reed, many grass, pine, oak, grass  
be 2% water sycam  
re 0  
ff 1% dustweed  
f 8% humpbacked saddle  
su 20% sparganget's cordata  
m 0

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

NOVE

GER, NLF, E  
BEAR TREE WOOD

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, HA

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

Field #: 42 Weather: precipitation: none Temp (°C): 30

Map Code: swale Wind Speed & Direction: 1-100 Cloud %: 5

Wetland Type: H Site Type: R Dominant Form: su

% Open Water: 40% ELC Code: SAD-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% oak, elder sycam, yellow birch, oak  
ls 5% red oak, dogwood, narrow leaved, yellow  
gc 5% grassland prairie, watercress  
ne 10% reed, cut grass, reed, many grass  
be 10% oak, narrow leaved, water sycam, water penny  
re 20% oak, small oak, stemmed bulrush, yellow, yellow  
ff 0  
f 10% sparganget's cordata, yellow, yellow  
su 40% sparganget's cordata, yellow, yellow  
m 0

Rare Species (Local, Regional, Provincial):

Wildlife Notes:

NOVE

PAULSTINE, NLF, E  
BEAR TREE WOOD  
GER, E  
NOVE

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: NOETM SUEGESS

Project #: 1142

Observer(s): BAH, WA

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

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

Map Code: ne M1 Wind Speed & Direction: 1-00 Cloud %: 5

Wetland Type: H Site Type: R Dominant Form: ne

% Open Water: 0 ELC Code: HAMM-S

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% <i>gurgel, moose, blackberry, narrow ground</i>	
ne 30% <i>hard, narrow grass</i>	
be 0	
re 25% <i>small, dark green sedge</i>	
ff 0	
f 0	
su 0	
m 0	

Rare Species (Local, Regional, Provincial):  
\* constructed swale

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: NOETM SUEGESS

Project #: 1142

Observer(s): BAH, WA

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

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

Map Code: h S2 Wind Speed & Direction: 1-00 Cloud %: 5

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

% Open Water: 0 ELC Code: SWB2-1

Photos: 0148, 0149

Forms % (Circle those ≥25%)	Species (dominant species, secondary species, present species)
h 30% <i>black ash, green ash, white pine</i>	
c 0	
dc, dh, ds 5%	
ts 40% <i>average pressure black ash</i>	
ls 30% <i>average pressure red maple, black ash</i>	
gc 60% <i>strawberry fern, long grass, wild rose</i>	
ne 5% <i>fox sedge</i>	
be 0	
re 0	
ff 0	
f 0	
su 0	
m 30% <i>Muller's sp.</i>	

Rare Species (Local, Regional, Provincial):  
none

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: NOETH SUCCESS Project #: 1142

Observer(s): SAH, MA

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

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

Map Code: NEUB Wind Speed & Direction: 120 Cloud %: 5

Wetland Type: 14 Site Type: R Dominant Form: re

% Open Water: 30 ELC Code: NASH1-1

Photos: ± 0150, 0151, 0152, 0153

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

- h 5% black elm
- c 2% white cedar
- dc, dh, ds 1%
- ts 10% scattered bare water oak
- ls 10% scattered bare water oak
- gc 1% purple loosestrife various muscled
- (ne) 25% reed canopy grass for sodas, narrow shrubs
- be 10% bare green grass for sodas, narrow shrubs
- re 30% reed canopy grass for sodas, narrow shrubs
- ff 5% arrowweed
- f 15% water hyacinth submerged sedges
- su ?
- m 0

Rare Species (Local, Regional, Provincial):

NONE

GRUE

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; ff=floating plants; f=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: NOETH SUCCESS Project #: 1142

Observer(s): SAH, MA

Date: AUG 11 / 2010 Time (24h): 10:50

Field #: 34 Weather: PRECIPITATION: Temp (°C):

Map Code: NEH1 Wind Speed & Direction: Cloud %:

Wetland Type: N Site Type: R Dominant Form: re

% Open Water: 0 ELC Code: HAWH1-16

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% bare loosestrife, reeds, ground cover, narrow shrubs
- (ne) 60% reed canopy grass, submerged sedges, narrow shrubs
- be 0
- re 10% bare green bulrush
- ff 0
- f 0
- su 0
- m 0

Rare Species (Local, Regional, Provincial):

NONE

NOBREV

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; ff=floating plants; f=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.**  
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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS

Project #: 1142

Observer(s): SAM, MA

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

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

Map Code: NEM5 Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: N Site Type: P Dominant Form: ne

% Open Water: 5 ELC Code: NATURAL

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% *nitrate leachate, powdered*  
ne 25% *box sedge, red, narrow grass*  
be 2% *water sump*  
re 90% *marsh*  
ff 0  
f 0  
su 0  
m 0

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

NONE  
ZWBL, 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



**NATURAL RESOURCE SOLUTIONS INC.**  
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**Wetland Vegetation Communities**

Project Name: NORTH BURGESS

Project #: 1142

Observer(s): SAM, MA

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

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

Map Code: NEM4 Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: N Site Type: P Dominant Form: ne

% Open Water: 0 ELC Code: NATURAL

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 water, Canada goldenrod*  
ne 60% *box sedge, narrow grass*  
be 0  
re 40% *dark green willow, reed*  
ff 0  
f 0  
su 0  
m 0

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

NONE  
NFER

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 BUSINESS

Project #: 1142

Observer(s): BAW, HA

Date: AUG 11/2010

Time (24h): 11:50

Field #: 37

Weather: Precipitation: NONE Temp (°C): 30

Map Code: 48511

Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: 9

Site Type: D Dominant Form: -4

% Open Water: 0

ELC Code: SWTN3-3

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 willows scattered under and over drowned  
ls 0% reeds in the narrow bands, some and over drowned  
gc 20% purple aster, common beak, grasses  
ne 5% reed canopy grass  
be 0  
re 5% tall shrubs  
ff 0  
f 0  
su 0  
m 0

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

NONE

ANEO, SOSP, NOEL

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 BUSINESS

Project #: 1142

Observer(s): BAW, HA

Date: AUG 11/2010

Time (24h): 12:00

Field #: 38

Weather: Precipitation: NONE Temp (°C): 30

Map Code: 48510

Wind Speed & Direction: 1-WS Cloud %: 5

Wetland Type: 9

Site Type: D Dominant Form: 45

% Open Water: 10

ELC Code: SWTN3-2

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 willows, tall herbaceous  
ls 25% reeds, some purple aster, narrow band, some  
gc 40% purple aster, grasses, some beak, grasses  
ne 25% reed canopy grass, tall shrubs  
be 5% common groundcover, water, tall shrubs, water  
re 5% tall shrubs, dark green, some beak, grasses  
ff 0  
f 0  
su 0  
m 0

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

NONE

ULFR, GECB, SEED

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): BAH, MA

Date: AUG 12/2016 Time (24h): 12 00

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

Map Code: R4M5 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: H Site Type: E Dominant Form: F

% Open Water: 30 ELC Code: NASHM-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% swamp lily  
ne 25% green alder  
be 10% swamp lily  
re 10% swamp lily  
ff 2% swamp lily  
f 10% swamp lily  
su 25% swamp lily  
m 0

Rare Species (Local, Regional, Provincial):  
Wildlife Notes: G3HE, GRFR, A660, E6DH

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): BAH, MA

Date: AUG 12/2016 Time (24h): 12:15

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

Map Code: L4M9 Wind Speed & Direction: 2-W Cloud %: 60

Wetland Type: H Site Type: E Dominant Form: A

% Open Water: 20 ELC Code: SA-1

Photos: = 201 203

Forms % (Circle those >25%) Species (dominant species, secondary species, present species)

h 0  
c 15% white cedar  
dc, dh, ds 20% white cedar  
ts 1% green alder  
ls 0  
gc 2% swamp lily  
ne 1% swamp lily  
be 5% swamp lily  
re 1% swamp lily  
ff 1% swamp lily  
f 40% swamp lily  
su 20% swamp lily  
m 0

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

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: UGETH SURVESS Project #: 1142

Observer(s): BAN MA

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

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

Map Code: 4551 Wind Speed & Direction: 2-0 Cloud %: 60

Wetland Type: S Site Type: P Dominant Form: 45

% Open Water: 0 ELC Code: SWTH3

Photos:

Forms % (Circle those ≥25%) Species (dominant species, secondary species, present species)

h 0  
c 0  
dc,dh,ds 11%  
s 60%  
ls 25%  
gc 0  
ne 0  
be 0  
re 0  
ff 0  
f 0  
su 0  
m 0

Rare Species (Local, Regional, Provincial):  
NONE

Wildlife Notes:  
\* water and 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



**NATURAL RESOURCE SOLUTIONS INC.**  
Aquatic, Terrestrial and Wetland Biologists

**Wetland Vegetation Communities**

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 \_\_\_\_\_  
s \_\_\_\_\_  
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

1/2

May 13, 2011

Weather = Sunny, 85% cloud, 25°C,  
Wind 3

Incidentals

East. Chipmunk (v)

Gray tree frog (call)

White-tailed deer (v)

Gray squirrel (Black morph)

Red squirrel (v)

Porcupine (v)

Coyote (scat)

Am. Crow

Tennessee Warbler

Yellow-rumped Warbler

Blue Jay

Golden-winged Warbler (3<sup>5:40</sup> (see 12/20/03))

Field Sparrow (S)

Grouse

Pileated Woodpecker

Turkey Vulture

Baltimore Oriole

Am. Goldfinch

Blackburnian Warbler

Wild Turkey

Mallard

11:45 -

Green frog (call)

Beaver (dash)

Leopard frog (v)

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 areas 1410-1433

No snakes observed,  
More incidentals  
Can. Goose (Pair)  
Tree Swallow

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

AL WALKER PHOTOGRAPHY

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