



1679 Waasis Rd., Rte 655, Rusagonis, New Brunswick, E3B 8G3
(506) 461-6695

**Preliminary Watercourse and Wetland Assessment
Of the
Ashburn Lake Road Site**

**For
Northrup Properties**

**By
TAP Environmental Resources Inc.**

July 28, 2005

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Summary

A preliminary site assessment of the Ashburn Lake Road site was conducted on June 30th and July 20th, 2005. The assessment was conducted to address issues concerning the watercourse (Little Marsh Creek) and wetland that are situated on the property.

Based on the site visit on June 30th and the wetlands mapping supplied by the New Brunswick Department of Natural Resources, two locations were identified as wetlands. During the July 20th site visit, Little Marsh Creek was electroseined to identify any fish species present in the watercourse. Although no salmonid species (Brook trout (*Salvelinus fontinalis*) or Atlantic salmon (*Salmo salar*) were captured, other species such as White Sucker (*Catostomus commersoni*) and Sea lamprey (*Petromyzon marinus*) were present.

The combined size of the wetlands (approximately 25 acres) and the presence of aquatic species will trigger a formal Environmental Impact Assessment of the site prior to the implementation of any onsite activity (based on the NBDELG requirements).

1.0 Introduction

TAP Environmental Resources Inc. was contacted by Northrup Properties to conduct a preliminary site assessment of a property located between Ashburn Lake Road and Highway 1. Issues such as, quality of habitat and fish species present, were raised during a meeting on June 21st by representatives of Northrup Properties, regarding the watercourse that flows through the property. After the meeting a site visit to the property also revealed that there would be some wetland issues such as, size and provincial designation of the wetland to deal with.

2.0 General Hydraulic Information on Ashburn Lake Road Site

The Ashburn Lake Road property site is located southeast of Durey Cove. The property is encompassed by Ashburn Lake Road to the west, Highway 1 to the southeast and Highway 100 to the northeast (Figure 1).

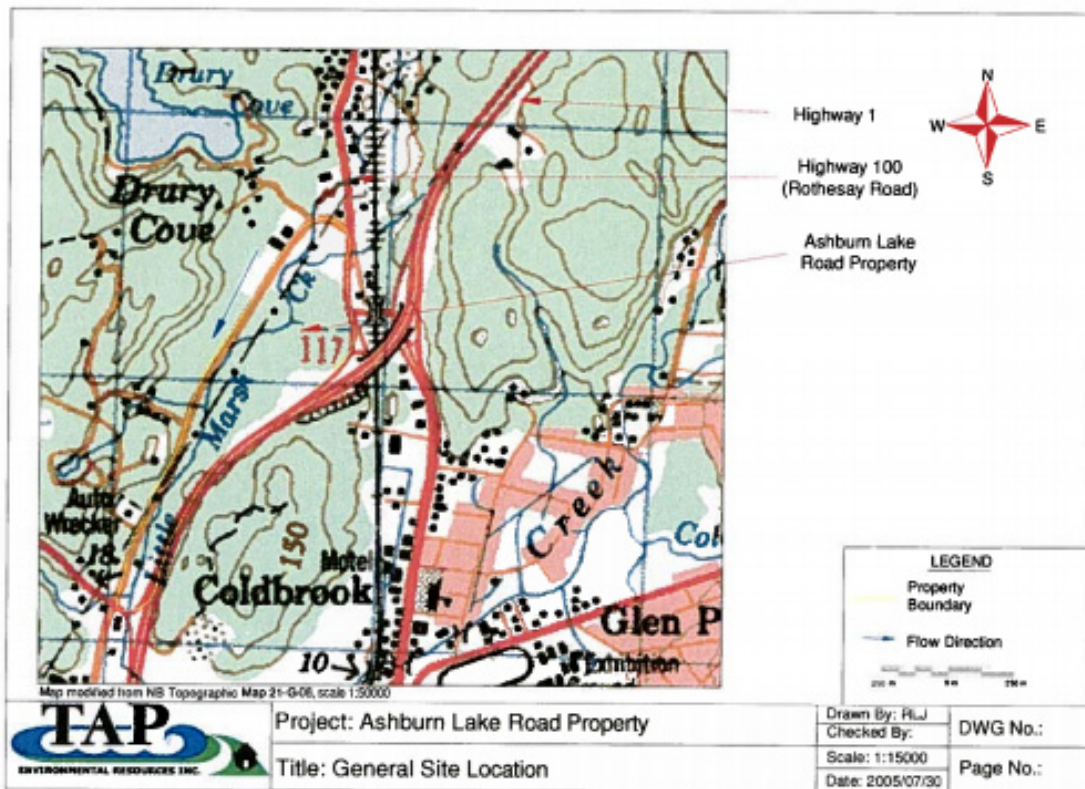


Figure 1 – Site Location

The flow of Little Marsh Creek is from north to south. The drainage area from the headwaters to the south end of the Ashburn Lake Road Property is approximately 965 acres. The calculated bankfull width is 4.60 metres and the field measurements at various locations along the watercourse ranged from 4.1 metres to 5.2 metres. The calculated bankfull discharge of Little Marsh Creek is estimated to be 1.06 m³/s. The watercourse

channel is somewhat incised and has a silt/mud bottom. The gradient of the watercourse is minimal. Based on the aerial map provided by Hughes Surveys and Consultants Inc., which shows the contour markings, the elevation of the watercourse as it enters the Ashburn Lake Road Property is approximately 0.91 metres and remains so to the south end of the property. The length of the Little Marsh Creek from the north end of the property to the south end is approximately 1800 metres. The combined length of the tributaries located on the Ashburn Lake Road Property is approximately 904 metres. The tributaries exhibit signs of having perennial or intermittent flow. Currently there is extensive beaver activity on the property with numerous dams and one large beaver den. There is a culvert, which provides access over the watercourse that was most likely installed during the construction of the compensatory ponds, which were dug many years ago. Sections of the culvert have since deteriorated and during the field investigation the beavers had filled the inlet three-quarters full of mud and wood debris. The beaver activity is causing extensive back flooding of the property.

3.0 Wetland

A wetland is defined as an area that periodically or permanently has the water table near, at, or above the land's surface and sustains aquatic processes as indicated by the presence of hydric soils, hydrophytic vegetation and biological activities adapted to wet conditions (NBDELG, Oct., 2003). On the Ashburn Lake Road property two areas were identified on the New Brunswick Wetlands Inventory Map, as being environmentally sensitive areas (Figure 2).

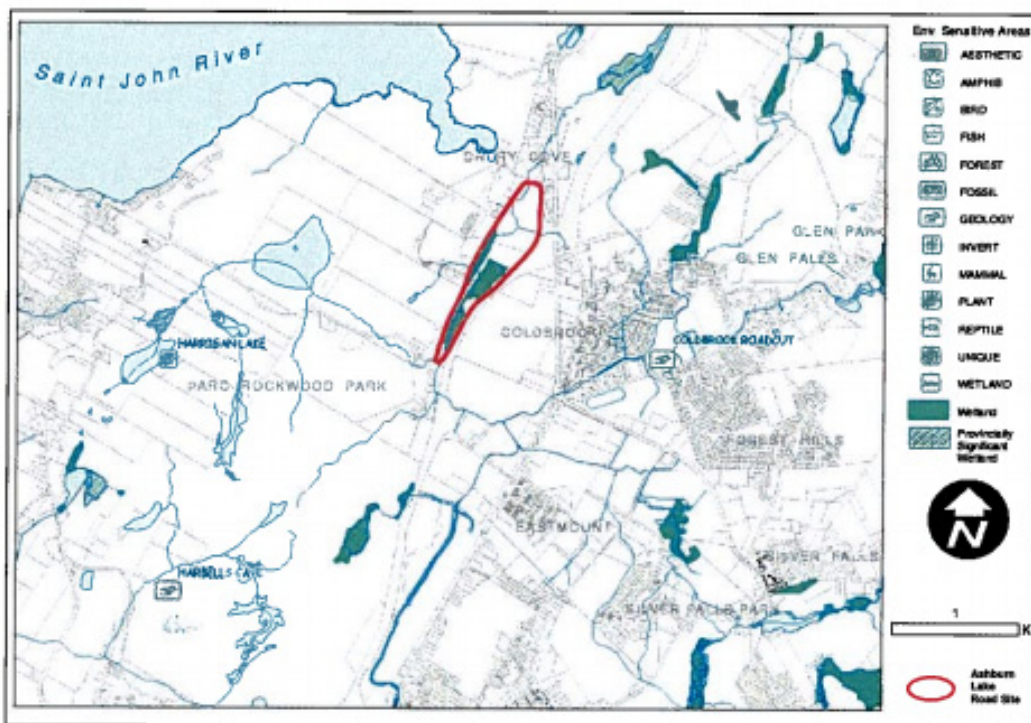


Figure 2 – NB Wetlands Inventory Map

The wetland located on the southeast side of the property is approximately 19.7 acres or 7.97 hectares. The wetland that is situated on the west side of the property is approximately 5.00 acres or 2.03 hectares. On June 30th, 2005 a field investigation of the site was conducted in order to identify areas, other than the ones identified on the New Brunswick Wetlands Map, which exhibited wetland characteristics. Figure 3 shows the boundaries of the sites that could potentially be classified as wetlands.

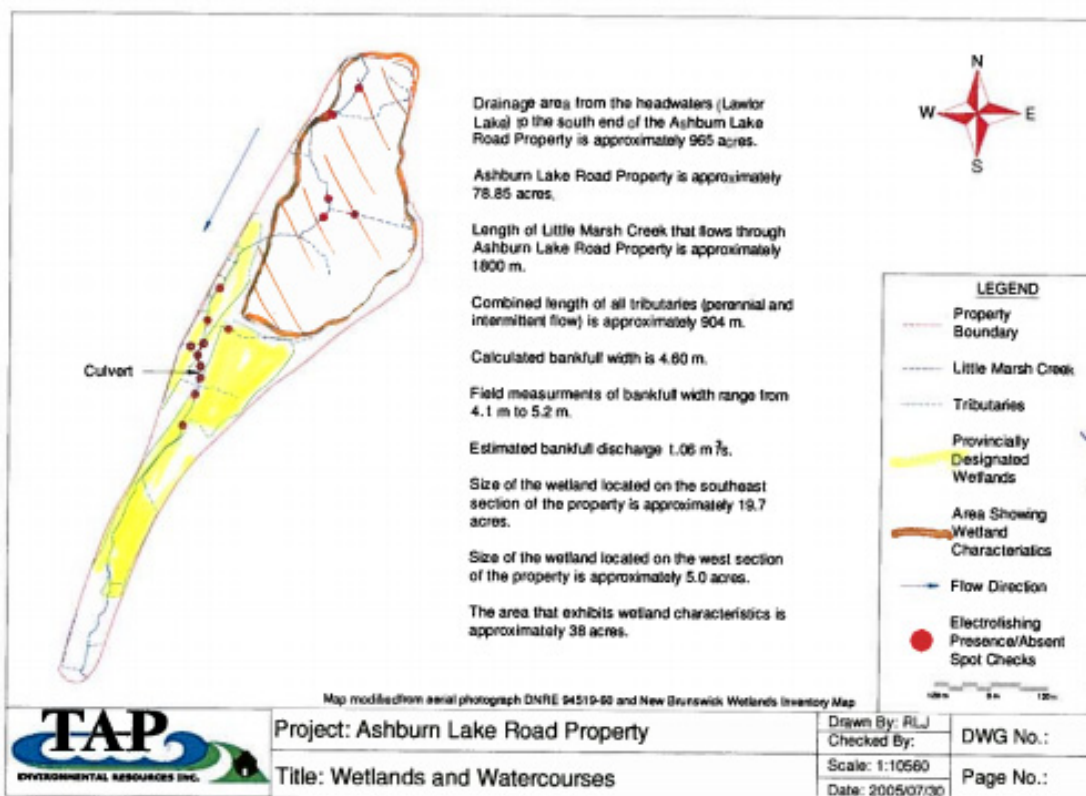


Figure 3 – Wetlands and Watercourses Location

There are approximately 38 acres of land located at the north end of the Ashburn Lake Road site that exhibit wetland characteristics. This area would need to be delineated by a certified wetlands technician recognized by the Province of New Brunswick in order to determine the exact nature of this area.

4.0 Electrofishing Results

Within the Ashburn Lake Road site, various locations along Little Marsh Creek were spot checked with an electrofishing unit, looking for the presence of any fish species. Back flooding from the numerous beaver dams, steep banks and a mud/silt bottom hindered the electrofishing procedure at times. However three fish species were identified at two of the locations. White Sucker (*Catostomus commersoni*), Sea lamprey (*Petromyzon marinus*) and Threespine Stickleback (*Gasterosteus aculeatus*) were present. The Threespine Sticklebacks number in the hundreds while only one White Sucker and three

Sea Lampreys were identified. There are probably more Sea Lampreys in the system, but the mud bottom of Little Marsh Creek would provide excellent cover for the Sea Lampreys to burrow into.

5.0 Conclusions

The watercourse (Little Marsh Creek) and the wetlands associated with the Ashburn Lake Road property will activate a formal Environmental Impact Assessment (EIA) and require a Watercourse and Wetland Alteration permit to work within 30 metres of these areas.

The 10 hectare wetland area that has been designated on the New Brunswick Wetlands Inventory Map, falls under Schedule A, item v, of the EIA regulation, which states, that all projects affecting two hectares or more of bog, marsh, swamp or other wetland, must be registered with the Project Assessment Branch, New Brunswick Department of Environment and Local Government. Formal registration of the proposed project under Section 5 (2) of Regulation 87-83 must be made to the Minister of Environment. The fee for registering this type of proposed project, where work will be carried out within 30 metres of a wetland, is \$1000.00. The registration document will address the proposed project location, proposed activities, the existing environmental conditions, potential impacts, and proposed mitigation. Once the proposed project has been registered, it becomes publicly accessible. Some items that must be addressed before registering the proposed project are, zoning issues, construction details, operation and maintenance details, future modifications, extensions or abandonment options, cultural features, and existing and historical land uses. A compensation plan will also be required that may involve the restoration or creation of two to four times the amount of wetland that has been impacted by the proposed project.

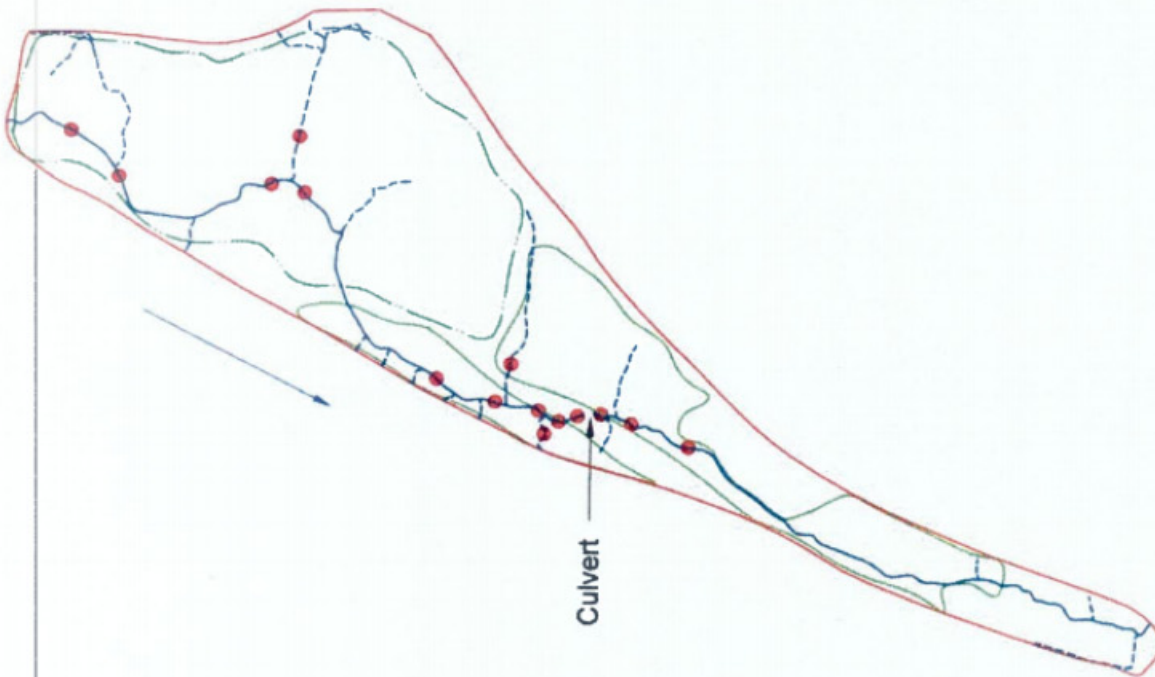
The proposed project will also impact Little Marsh Creek and some of the tributaries that flow through Ashburn Lake Road site. In order to work within 30 metres of a watercourse or alter the channel corridor, flow pattern or hydraulic characteristics of a watercourse, a Watercourse and Wetlands Alteration Permit (WWAP) is required under the Clean Water Act. Certain documentation must be included when submitting an application package for a Watercourse and Wetlands Alteration Permit. Existing and new hydraulic/geomorphic features of the watercourse including bed material analysis, scaled drawings, plan, profile and cross-sectional views must accompany the WWAP application package.

The turnaround period from the time that a formal EIA application is registered and a WWAP application is submitted is four months to over one year. This is dependent upon various factors including regulator review time and the number of required public meetings. Normally one public meeting in the area of the proposed project is sufficient. However more may be established at the Minister's discretion.

Although this report provides a brief overview the EIA and WWAP process, it present an indication of the level of involvement that is required when dealing with a proposed project that is within 30 metres of a watercourse and/or wetland.

References

- New Brunswick Department of Environment and Local Government. 2003. Watercourse and Wetland Alteration Technical Guidelines.
- New Brunswick Department of Environment and Local Government. 2005. A Guide to Environmental Impact Assessment in New Brunswick.
- The Canada Centre for Mapping, Department of Energy, Mines and Resources. 1990. New Brunswick Topographic Map, 21-G-08, Scale 1:50000.
- New Brunswick Department of Natural Resources. Undated. New Brunswick Wetlands Inventory Map.
- New Brunswick Department of Natural Resources. 1994. Aerial Photograph 94519-60.



Drainage area from the headwaters (Lawlor Lake) to the south end of the Ashburn Lake Road Property is approximately 965 acres.

Ashburn Lake Road Property is approximately 78.85 acres.

Length of Little Marsh Creek that flows through Ashburn Lake Road Property is approximately 1800 m.

Combined length of all tributaries (perennial and intermittent flow) is approximately 904 m.

Calculated bankfull width is 4.60 m.

Field measurements of bankfull width range from 4.1 m to 5.2 m.

Estimated bankfull discharge 1.06 m³/s.

Size of the wetland located on the southeast section of the property is approximately 19.7 acres.

Size of the wetland located on the west section of the property is approximately 5.0 acres.

The area that exhibits wetland characteristics is approximately 38 acres.



LEGEND

- Property Boundary
- Little Marsh Creek
- Tributaries
- Provincially Designated Wetlands
- Area Showing Wetland Characteristics
- Flow Direction
- Electrofishing Presence/Absent Spot Checks

120 m 0 m 120 m

Map modified from aerial photograph DNRE 94519-60 and New Brunswick Wetlands Inventory Map



Project: Ashburn Lake Road Property

Title: Wetlands and Watercourses

Drawn By: RLU
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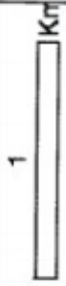
Env. Sensitive Areas

-  AESTHETIC
-  AMPHIB
-  BIRD
-  FISH
-  FOREST
-  FOSSIL
-  GEOLOGY
-  INVERT
-  MAMMAL
-  PLANT
-  REPTILE
-  UNIQUE
-  WETLAND

Wetland



Provincially Significant Wetland

 Ashburn Lake Road Site

