

**ANTIGONISH-DRUM HEAD HIGHWAY
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT**

Heritage Research Permit A2005NS87



November 2005

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**ANTIGONISH-DRUM HEAD HIGHWAY
ARCHAEOLOGICAL RESOURCE IMPACT
ASSESSMENT:**

**Heritage Research Permit A2005NS88
Category C**

Davis Archaeological Consultants Limited

Principal Investigator: April D. MacIntyre
Report Compiled by: April D. MacIntyre & Stephen A. Davis

Cover: Proposed highway crossing near Glenroy/Lower Springfield showing a young apple tree in power line right-of-way.

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EXECUTIVE SUMMARY

Davis Archaeological Consultants (DAC) Limited has conducted a preliminary archaeological resource impact assessment of the proposed Antigonish – Drum Head Highway in eastern Nova Scotia under contract to Membertou Geomatics Consultants Limited. Archaeological predictive modelling, historical background research, and a visual reconnaissance of the study area have resulted in the identification of several areas of archaeological potential along the proposed highway route. No archaeological sites were recorded during the assessment. At this time the centre line has not been surveyed nor cut through the study area and, therefore, many areas along the route were not easily accessible during the preliminary reconnaissance.

A full archaeological survey of the impact zone is recommended at a time when a centre line has been cut along the highway route. As is required under the Heritage Research Permit guidelines, it is recommended that those areas assessed as being of elevated archaeological potential (i.e. moderate and high potential) be tested at such time as these areas are accessible and private landowners have been notified or the lands acquired.

1.0 INTRODUCTION

In September 2005, Davis Archaeological Consultants (DAC) Limited was contracted by Membertou Geomatics Consultants to conduct an archaeological resource impact assessment of the proposed Antigonish-Drum Head Highway in eastern Nova Scotia. The assessment was conducted under Heritage Research Permit A2005NS87 (Appendix A) and included archaeological predictive modelling in order to evaluate the potential for First Nations activity throughout the development area. An examination of historic documents was also conducted in order to assess the potential for historic resources, including Euro-Canadian and First Nations sites, within the impact corridor. This was followed by a preliminary archaeological field reconnaissance of accessible areas of the development corridor which was carried out by two qualified archaeologists.

The assessment was conducted over the course of three weeks between 3 – 14 October and 24 – 28 October 2005 by DAC's principal investigator, Stephen Davis (predictive modelling and field reconnaissance) and senior technician, April MacIntyre (documentary research and field reconnaissance). This report is an account of the results of the archaeological assessment.

2.0 DEVELOPMENT AREA

Keltic Petrochemicals Inc. proposes to construct a two-lane all-weather highway from Antigonish to Drum Head beginning at Beech Hill Road in Antigonish County and running approximately 60 kilometres to Highway 316 in Drum Head. The construction of the highway will require a 50 metre-wide right-of-way on either side of the corridor. In order to account for error in historical maps and any slight realignment that may be required in the construction of the highway, a 500 metre-wide buffer will be allowed on either side of the corridor when conducting the archaeological assessment. The proposed highway route that is used in this assessment is that which was provided to Davis Archaeological Consultants Ltd. by Keltic Petrochemicals on 24 October 2005.

Much of the development area, from the shore of Antigonish Harbour to the Salmon River, is terrestrially Carboniferous Lowland. The soils throughout the majority of the region are humo-ferrous podzols overlying deep, poorly-drained glacial tills. Gypsum is common throughout the lowland region and results in karst topography and, consequently, the formation of sink holes in many areas. In these areas, the soil is less acidic and more permeable. Forests in the Antigonish and Guysborough regions are predominantly softwood and rich intervale land is common in the Antigonish area. In the agricultural areas, open-land mammals such as fox, raccoon, and skunk are common and deer, moose, and bears are abundant in the forested regions south of Antigonish. Muskrat

and mink are abundant along rivers and streams and freshwater fauna are more diverse than in any other region of the province.¹

South of Salmon River, the region is classified as Quartzite Barrens. The soils here are, on average, such thin tills that surficial bedrock dominates the topography. Where thicker soils have accumulated, drumlins are typically found. Glacial lakes are common throughout the barrens and tend to be dystrophic (discoloured, acidic, and deficient in bottom fauna). Forests in this region are predominantly hardwood with intermittent Black Spruce swamps. Hare, bobcats, and deer are common and small-mammal diversity is relatively high along rivers and streams.²

3.0 STUDY AREA

The study area encompasses the same area as the development zone (Figure 3.0-1). The proposed highway roughly follows the Beech Hill Road south of highway 104 for approximately 4.5 km where it veers south-south westward approximately 6 km to the west side of South River near Dunmore. It then crosses the South River and Highway 316 at an east-south east angle to meet Springfield Road at a distance of approximately 4.5 km. From there, the proposed route crosses the power line and follows it along the east side of the power line for approximately 20 km to the electrical substation at Salmon River Lake. The route then meanders through wooded areas east of Costley Lake and meets the Maritimes & Northeast Pipeline west of Meadow Lake. From here, the proposed highway follows the Pipeline corridor to the rear of Goldboro Industrial Park and on to Drum Head.

Because a cut line was not available at the time of the field reconnaissance, only those areas directly accessible by roadways could be investigated. In addition, much of the land is privately owned and access to them had not been granted at this time.

In particular, the reconnaissance was limited to the Beech Hill Road portion of the route, the South River crossing at Dunmore, Lower Springfield crossings, Upper Springfield crossing, several crossings at Erinville, the Salmon River crossing, Isaac's Harbour River crossing, Goldbrook Lake crossing, and the Drum Head junction (Figure 3.0-1).

¹ Davis and Browne, 1996:94-97.

² Davis and Browne, 1996:56-57.

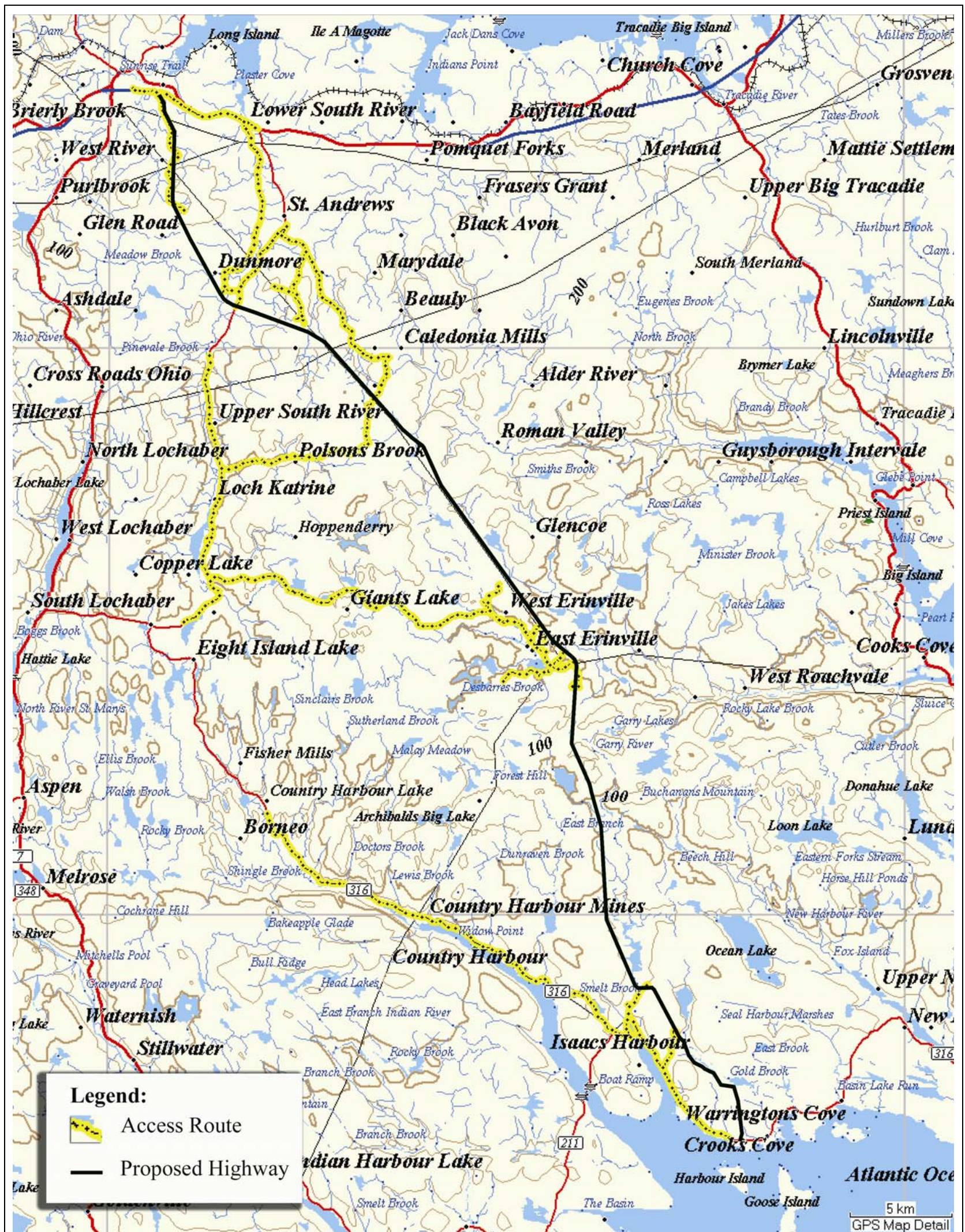


Figure 3.0-1:

Map of the proposed highway and accessible points along the route.



24 October 2005

3.1 Historical Background

The present town site of Antigonish was known by the eighteenth century French as Indian Gardens and Father Maillard, a Roman Catholic priest, referred to *Naltigonech* as being part of his mission to Christianize the Mi'kmaq in 1745.³ In about 1720, Father Gaulin, also a Catholic missionary reported to his superiors that the "Micmacs of Acadia are desirous of being collected in one village; then they could send for grain and catch fish sufficiently to make a living, and that is what induced them to select the river d'Arthigonesche near which to set up a village.... The little corn the Indians have been growing there for some time, and peas, and beans and cabbages grow there very well".⁴ In 1783, a licence was granted to the chief of the Antigonish band to occupy the land on the western side of the harbour as well as the village at the head of the harbour which they had improved upon. When the chief surveyor for the province was issued a warrant to survey a lot for the disbanded regiment of Royal Nova Scotia Volunteers in 1783, he was instructed to reserve this land for the Mi'kmaq. However, his deputy surveyor, while laying out the grant of 21,600 acres for Colonel Timothy Hierlihy and his disbanded regiment, ignored the Governor's order and the whole of the reservation was taken up.⁵

In 1784, Hierlihy's regiment settled the grant that was given them on both sides of Antigonish Harbour which became known as the Soldier's Grant.⁶ The soldiers were granted lots in the town as well as large farm lots between Beech Hill and South River. In 1802, surveyor Richard Morris laid out a road from Antigonish to Manchester in Guysborough County. The first settlement along this road became known as Manchester Road Settlement and is now known as Marydale. Angus McDonald and Roderick Chisholm were the first to settle along the road. They were soon joined by several fellow Scots who arrived in Nova Scotia via Pictou aboard the ship *Nora*. By about 1805, there were forty or fifty people in the Manchester Road Settlement.⁷

Also in 1784, a group of Loyalists from St. Augustine, Florida arrived in Guysborough County on board the *Argo* and took up a grant of 8,450 acres on the southwest side of the Strait of Canso, some of this land lying between the township of Manchester and Red Head to the south. Forty-eight lots were laid out in October ranging from 100 to 450 acres each.⁸

In 1801, one Joseph Marshall, in a letter to Michael Wallace, indicated that approximately fourteen Mi'kmaq families had moved to the Guysborough area from Antigonish, some of them having settled at Salmon River. Marshall observed five

³ Walsh, 1989:16-20.

⁴ MacGillivray, 1935:95-96.

⁵ MacGillivray, 1935:96-97.

⁶ Rankin, 1929:4-6.

⁷ Rankin, 1929:14; Walsh, 1989:33.

⁸ Hart, 1975:124; Jost, 1950:176.

wigwams along the river and reported that the settlers were destitute and required food and proper shelter.⁹

Around 1815, a number of Irish families from Newfoundland formed settlements at Salmon River Lakes and up the valley between the Guysboro Intervale and St. Andrews. This became known as the Roman Valley as the immigrants were Roman Catholic.¹⁰

Ambrose F. Church's map for Antigonish County (1879) shows dense settlements of Scots all along the South River and communities to the west and east (Figure 3.1-1).¹¹ In Guysborough County (1876), settlements around Roman Valley-Glencoe-Erinville are predominantly Irish. The area south of Salmon River is largely unsettled to Isaac's Harbour (Figure 3.1-2).¹²

Geological Survey maps of the area in 1893 indicate a Mi'kmaq settlement near the north end of Beech Hill road, where the proposed highway begins. Approximately 6 kms south of the Beech Hill – Highway 104 intersection, houses and a forge are indicated. Approximately 2 kms to the south, near Dunmore, was a mill and quarry of unknown function.¹³ At Salmon River Lake, a large community then known as Bantry, existed including a church, post office, and saw mill. Further south, near Gerry Lakes, a cemetery was dedicated, the graves marked with field stones rather than formal headstones. A stone cairn was said to be erected near the cemetery to mark the site of an old log church built in the 1820s.¹⁴ The Geological Survey map also indicates a camp at Big Stillwater (Figures 3.1-3 to 3.1-5).

The Nova Scotia Museum Archaeological Sites Database indicated five additional recorded archaeological sites within or near the study area. Two First Nations sites were recorded in the vicinity of Antigonish Harbour, outside the study area, by archaeologist Ron Nash in 1983.

Early twentieth century gold mining features were reported by Marc Lavoie in 1988 at the south end of Gold Brook Lake. This site consisted of mining houses, offices, a shop, a mill, and a mine shaft. The recorded features are located within a kilometre of the highway corridor and if additional associated features have not been recorded, they may be impacted by the highway construction.

Woodland period (2,500 – 500 years before present) stone and ceramic artifacts were reported by a local resident on the west side of Isaac's Harbour in 1969 and the site confirmed and recorded by Lavoie in 1988. A suspected historic First Nations burial site was recorded at Stormont. Again, both sites lie outside the study area but their existence confirms the presence of First Nations people in this area prior to European arrival.

⁹ PANS RG 1 Vol. 430 #86.

¹⁰ Hart, 1975:72.

¹¹ Church, 1879.

¹² Church, 1876.

¹³ Geological Survey of Canada 1893a.

¹⁴ Geological Survey of Canada 1893b; MacDonald, n.d.:6-9.

Goldboro is known to have been home to at least two Mi'kmaq encampments, one at Schoolhouse Brook which is believed to have been their burying ground, and the other at the head of the harbour on Isaac's Harbour River.¹⁵ No archaeological evidence of either of these sites has been found.

¹⁵ Cook 1976:7.

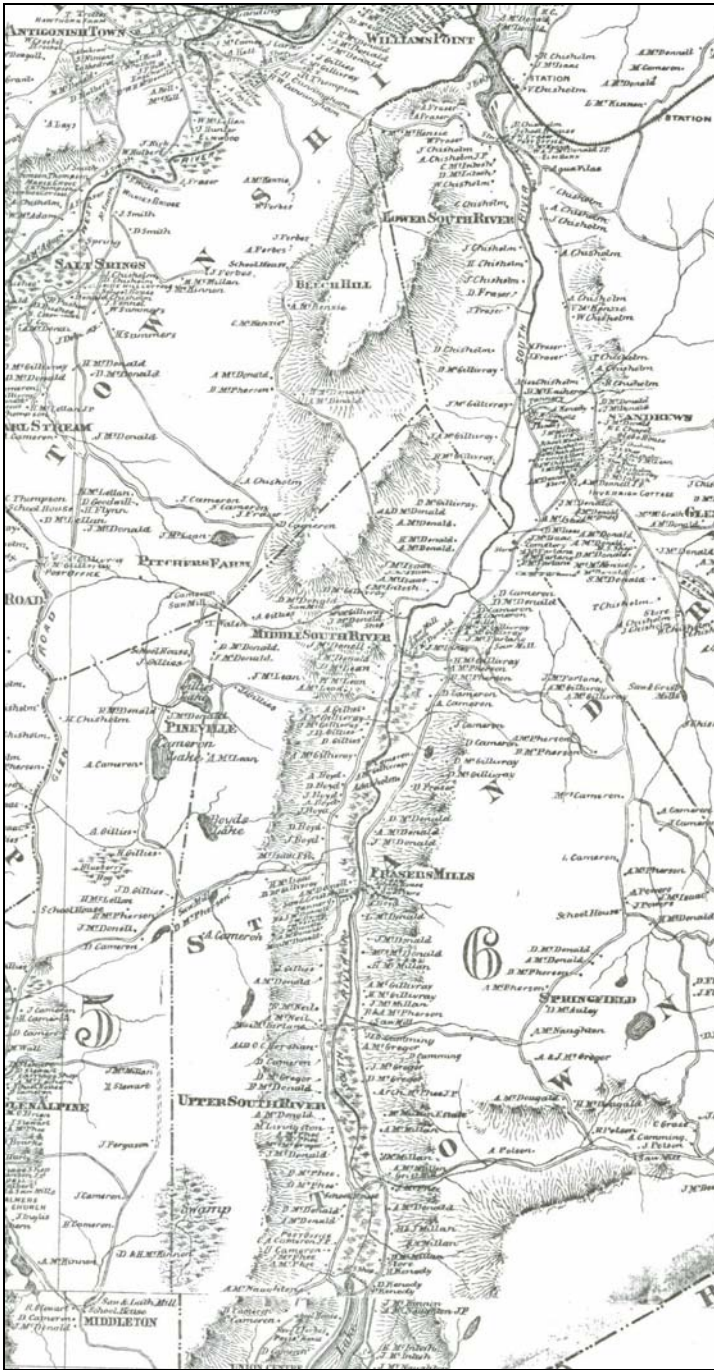


Figure 3.1-1: Ambrose F. Church's map of Antigonish County, 1879.



Figure 3.1-2: Ambrose F. Church's map of Guysborough County, 1876.

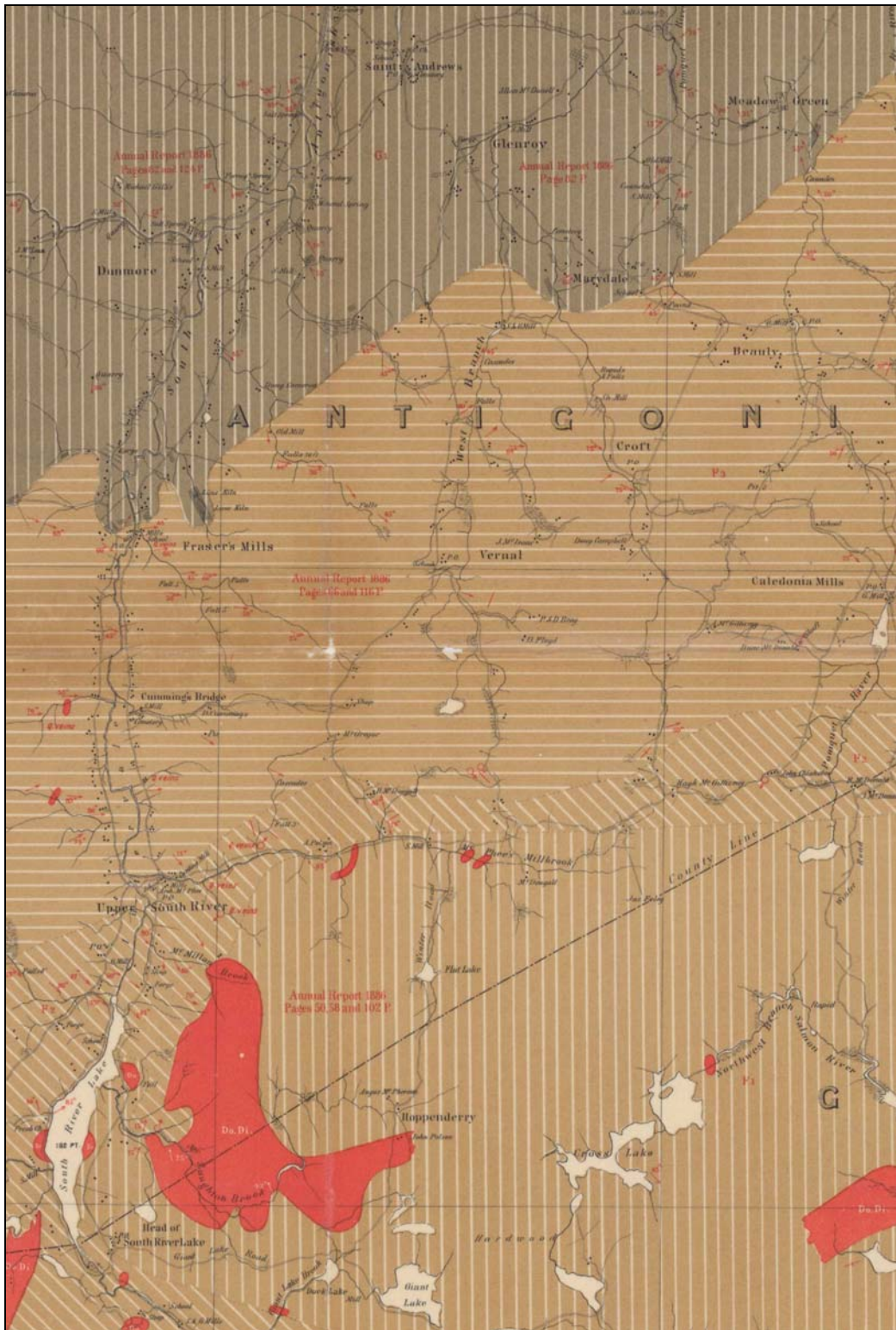
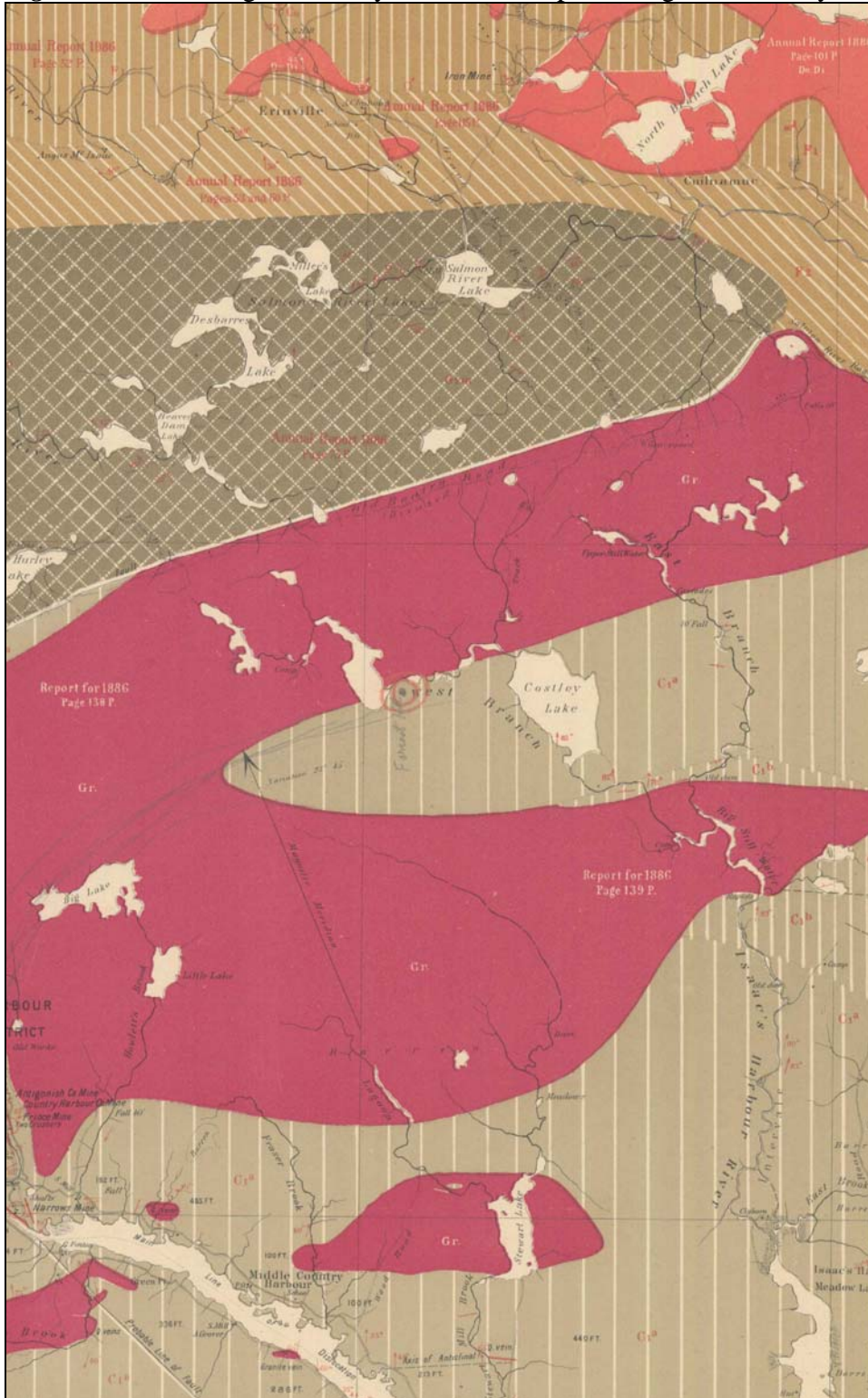


Figure 3.1-3: Geological Survey of Canada map of Antigonish County, 1893.¹⁶



¹⁶ Geological Survey of Canada 1893a.

Figure 3.1-4: Geological Survey of Canada map of Guysborough County, 1893.¹⁷

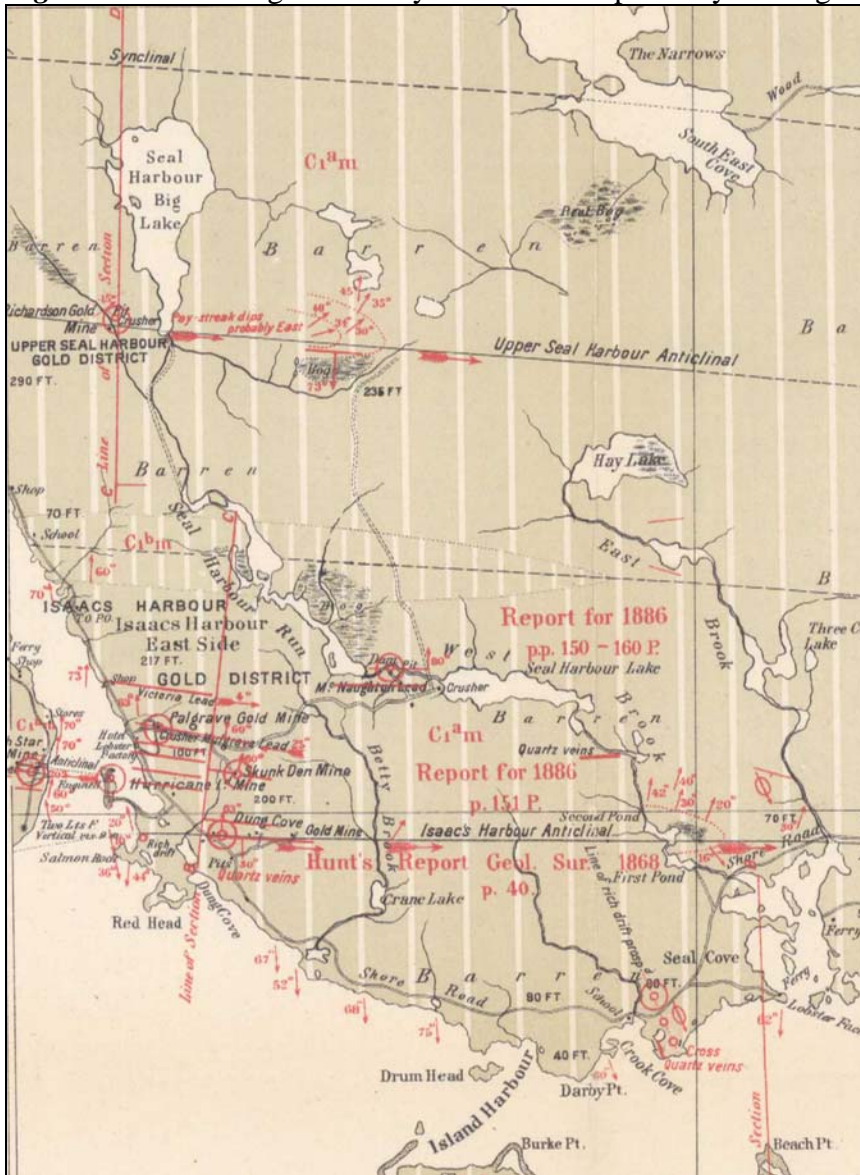


Figure 3.1-5: Geological Survey of Canada map of Isaac's Harbour, 1893.¹⁸

¹⁷ Geological Survey of Canada 1893b.

¹⁸ Geological Survey of Canada 1893c.

4.0 METHODOLOGY

In addition to a historic background study, archaeological predictive modelling was used to assess the potential for First Nations resources within the study area. The results of the historic background study have been presented in the previous section.

4.1 Archaeological Predictive Modelling – First Nations Resources

Archaeological predictive modelling within the highway corridor has produced an assignment of high, medium, and low potential zones for the presence of First Nations resources (Figure 4.1-1). This modelling exercise was based primarily on river crossings and stream order; for instance, does the highway corridor cross major river systems and where in the network of rivers and/or streams does the crossing lie? Higher order lakes/streams/rivers are those which drain from several other lakes/streams/rivers in a network. They tend to be the most productive and, therefore, are the most suitable for exploitation.

4.2 Archaeological Field Reconnaissance

An archaeological reconnaissance of accessible portions of the study area was carried out by DAC's principal investigator and senior technician between 26 – 28 October 2005 (refer to Figure 3.0-1). The reconnaissance was limited to a visual assessment of archaeological potential based on topography, available resources, and evidence of cultural modification. No archaeological resources were recorded during this activity, although several areas of archaeological potential were noted (Figure 4.2-1).

The reconnaissance began at the southern end of the proposed highway, at Drum Head, and followed the proposed route northwestward to its place of beginning in Antigonish (Beech Hill Road).

At Drum Head, the proposed highway passes through an open field adjacent to Highway 316 which is covered in low brush and moss and is surrounded by a thick conifer forest. This area shows no evidence of cultural modification and is unsuitable for First Nations habitation (Plate 4.2-1).

The crossing at Goldbrook Road runs adjacent to the Maritimes & Northeast Pipeline and has been heavily disturbed by grading and levelling on the south side and to the east is an area of low, wet ground.

The Isaac's Harbour River crossing is heavily forested and the ground slopes dramatically to the west. There is no evidence of cultural modification in this area and it appears unsuitable for First Nations settlement as the river is high-energy and the ground

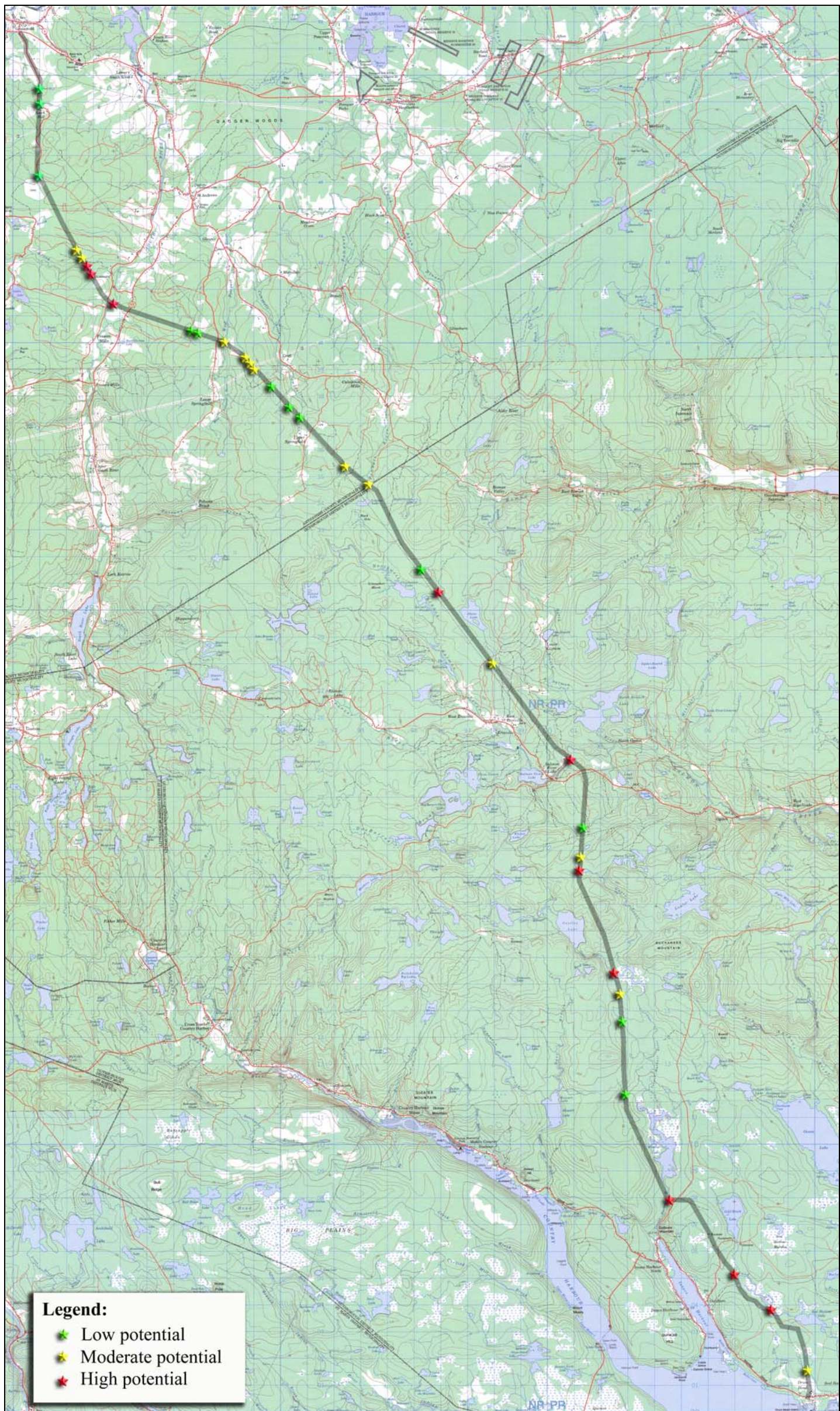


Figure 4.1-1:

Map of the proposed highway showing predicted archaeological potential for First Nations sites at water crossings along the route.

Scale 1:50 000

Membertou
GEOMATICS CONSULTANTS



01 November 2005

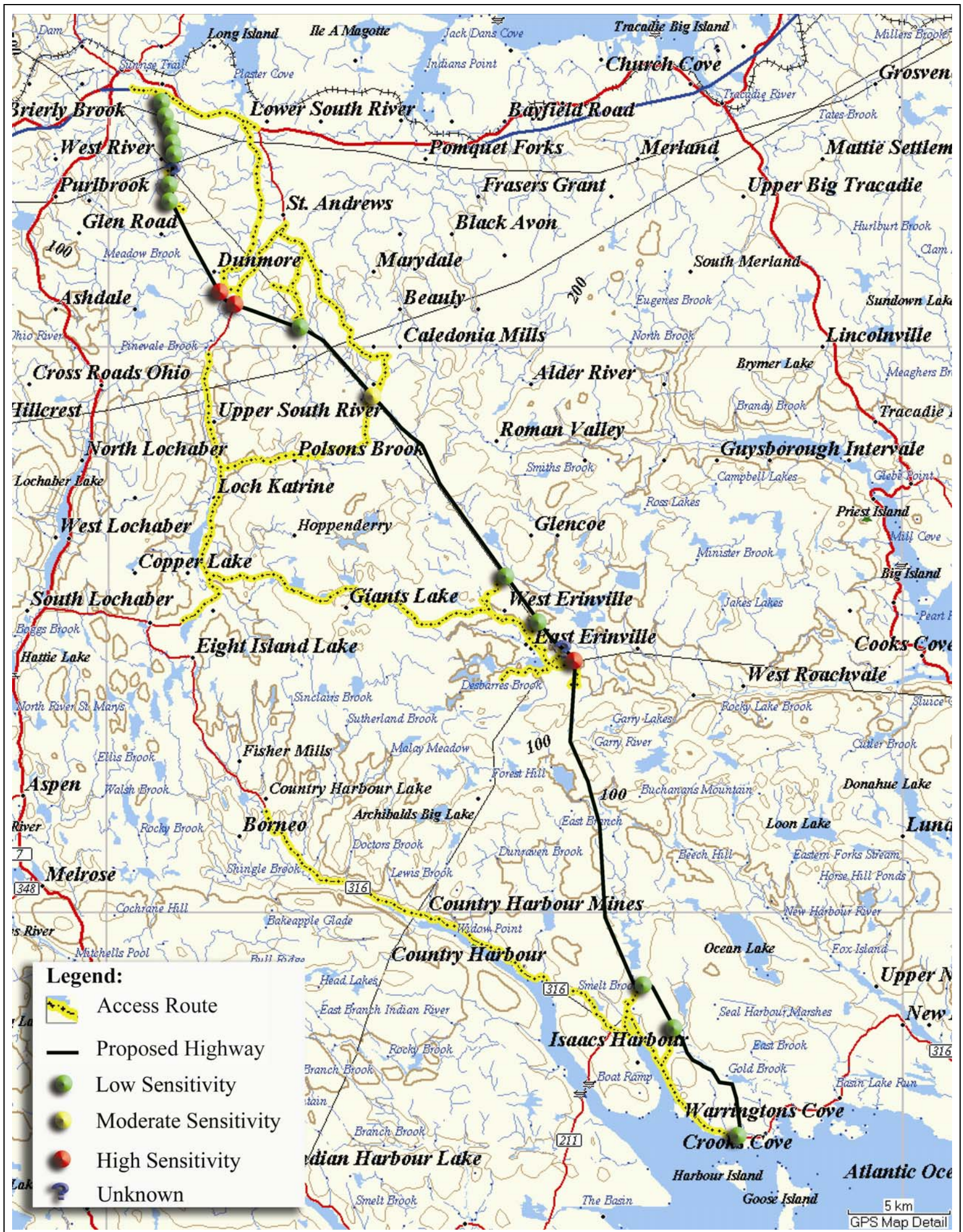


Figure 4.2-1:

Map of the proposed highway showing archaeological sensitivity of accessible points along the route, determined through archaeological reconnaissance.



01 November 2005

adjacent to it is very high. The most likely location for the First Nations encampment at Isaac's Harbour River is at the mouth of the river where it is most productive.

The Salmon River crossing is intersected by three roadways or paths running parallel to the river, one of which is the Trans Canada trail which appears to be an old railbed. There are several episodes of field clearing between the trail and the river, suggesting historic habitation to the north of the river. There is a modern settlement in this area and it is known to have been the site of a thriving settlement in the nineteenth century. Therefore, this area is believed to be of high potential for historic resources and both sides of the river should be tested for First Nations resources.

Access to the East Erinville crossing was blocked at the time of the reconnaissance and, therefore, its archaeological sensitivity is not known.

The West Erinville and Erinville/Lower Glencoe crossings run parallel to the power line and are heavily treed. Much of the land is currently being used for tree cultivation and harvesting and is dramatically sloping. This area is believed to be of low archaeological sensitivity.

The Upper Springfield crossing south of Caledonia Mills also parallels the power line and the land is heavily modified. To the north, the land is under modern cultivation as part of a privately owned farm (Plate 4.2-2). To the south, there is new conifer growth as well as mature growth and the land on the west side of the power line appears to have been historically cultivated. This area is believed to be of moderate archaeological sensitivity.

The Glenroy/Lower Springfield crossing west of Caledonia Mills is currently under cultivation and surrounded by dense conifer forest. This crossing parallels the power line and is believed to be of low archaeological sensitivity.

At Dunmore, where proposed highway crosses the South River, the land on both sides of the river has been historically cultivated and there are several apple trees throughout. On the east side of the river, an old roadway leads northwestward and the land on the south side appears to have been cultivated. Although the land slopes dramatically toward the river, it forms a wide flat terrace above the river bank. This area is of high archaeological sensitivity for historic resources and should be tested on both sides of the river for First Nations resources.

At the north end, the proposed route follows the current Beech Hill Road alignment, with some slight deviation. The lands along both sides of the roadway are privately owned and appear to have been significantly altered for the most part, with the exception of one small section where the road deviates from course through a wooded area. This area was not investigated as it was presumed to be private land. With the exception of this portion of the route along Beech Hill Road, the route here has been assigned a low level of archaeological sensitivity.



Plate 4.2-1: Proposed location of highway at Drum Head, north side of highway 316, looking east.



Plate 4.2-2: Cultivated farmers' fields at Upper Springfield crossing, looking north.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The archaeological assessment of the proposed highway route is very preliminary as a corridor or right-of-way has not yet been surveyed and cut and, therefore, many areas were not accessible during the field reconnaissance. In addition, many of the accessible lands are, as of yet, in private possession and permission has not been granted to investigate these areas. Several areas of elevated archaeological sensitivity/potential have been identified during this assessment based on the historical background study and archaeological predictive modelling. However, further physical investigation is needed in order to corroborate or refute these predictions. Therefore, it is recommended that a full archaeological survey of the highway route be conducted once a corridor or right-of-way has been cut. More specifically, it is recommended that subsurface testing be conducted at five metre intervals within those areas evaluated as high potential for First Nations resources and at ten metre intervals in those areas evaluated as moderate potential. Random subsurface testing should be also conducted in those areas assessed as low potential in order to evaluate the predictive model.

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APPENDIX A:
Heritage Research Permit A2005NS87



Nova Scotia Museum
Special Places Protection Act,
R.S.N.S. 1989

Application for
**Heritage
Research Permit**
(Archaeology)

Permit No. **A2005NS87**

(Original becomes Permit when approved
by the Executive Director of the Nova
Scotia Museum)

The undersigned April MacIntyre
of 6519 Oak Street, Halifax, Nova Scotia B3L 1H6
representing (institution) Davis Archaeological Consultants Limited

hereby applies for a permit under Section 8 of the Special Places Protection Act to carry out archaeological investigations during the period:

from October 3, 2005 to December 31, 2005
at Antigonish to Guysborough Highway
general location Antigonish / Guysborough Counties

specific location(s) (cite Borden numbers and UTM designations where appropriate)

Beech Hill Road Intersection, Antigonish County to Goldboro Industrial Park

and as described separately in accordance with the attached Project Description. Please refer to the appropriate Archaeological Heritage Research Permit Guidelines for the appropriate Project Description format.

I certify that I am familiar with the provisions of the Special Places Protection Act of Nova Scotia, and that I will abide by the terms and conditions listed in the Heritage Research Permit Guidelines for the category (check one).

- Category A - Archaeological Reconnaissance
- Category B - Archaeological Research
- Category C - Archaeological Resource Impact Assessment

Signature of applicant April MacIntyre Date Sept 27/05

Approved: Lee Sheel Executive Director Date Oct 4/05

APPENDIX B:
Field Notes

Field Notes

April D. MacIntyre

26 October 2005

General reconnaissance of area between Salmon River Lake and Antigonish to find access routes and further evaluate high potential areas.

27 October 2005

Drum Head end of highway:

Open field, low brush surrounded by conifer forest. Open field across road (shore side). Marshy ground in study area. **Low sensitivity.**

Crossing at Goldbrook Road:

MNEP Pipeline crossing road. On south side of road, east of the pipeline there is modern disturbance (grading and levelling), modern dumping. Wet ground to east. Area to west of pipeline is heavily wooded (conifer and deciduous forest). **Low sensitivity.**

Head of Isaac's Harbour crossing:

Forested on all four sides of pipeline. Land slopes dramatically to the west. **Low sensitivity.**

Salmon River crossing:

North side of river, evidence of historic habitation. Three roads running parallel to river, including the Trans-Canada trail which appears to be an old rail bed. Field clearing between TC trail and the road nearest the river. **Needs testing for precontact resources and further investigation for historic resources.** On the north side of the access road, the land is high and rugged.

Erinville/Lower Glencoe crossing:

Sloping valley on east side of roadway. Brush cover. Tree harvesting/cultivation to east. West side of roadway, land dips to the west. Wet, low ground. Some clearing. **Low sensitivity.**

Back tracked to East Erinville crossing (missed access road the first time). Access to study area is blocked by a tree harvester.

West Erinville crossing:

Heavily treed on east side of power line. Wet area on north side of access road. **Low sensitivity.**

Upper Springfield crossing:

Farmer's fields on west side of power line, north side of access road. New growth on south side of access road. South side of access road, west side of power line there is a treed area that appears to have been cultivated. Modern settlement nearby. **Moderate potential.**

Glenroy/Lower Springfield crossing:

Heavily treed (deciduous) around power line. Land slopes from west to east. Young (<10 yrs) apple tree growing in centre of power line on east side of access road. Cultivated hay fields and blueberry fields to east. **Low sensitivity.**

Glenroy/Lower Springfield North crossing:

Tree farm on west side of access road. Surrounding land is fairly rough. Deciduous and conifer forest. **Low sensitivity.**

Dunmore crossing, east side of South River:

On north side of access road, old road (still in use) running northward. Several apple trees (50+ yrs) on both sides of this roadway. Conifer and deciduous forest approximately 15 m from Highway 316 (old roadway leading into it). **High potential for historic resources.**

Dunmore crossing, west side of South River:

Old roadway on west side of access road. Approximately 6 apple trees on east side of access road above South River. Steep drop to the river. Flat terrace above river (below access road). **Will need testing for pre-contact resources (rated moderate potential).** Cultivated fields along the old roadway to the west. Apple trees throughout. **High potential for historic resources.**

28 October 2005

Beech Hill Road:

Proposed highway roughly follows the Beech Hill Road from Antigonish. Much of land on both sides of road is private land and was not accessed; visual reconnaissance only. Land has been significantly altered on both sides of roadway (plowed fields). Areas where highway deviates from existing road will need further investigation once access to private lands is granted.

First Nations settlement at north end of Beech Hill Road is likely further east, in treed area and will not likely be impacted.

PHOTOGRAPHIC RECORD		
Frame	Description	Date
1	South end of highway at Drum Head junction, looking north.	2005-10-27
2	South end of highway at Drum Head junction, looking east.	2005-10-27
3	Goldbrook Road crossing, east side of road.	2005-10-27
4	Isaac's Harbour River crossing; east side of road, north side of pipeline.	2005-10-27
5	Isaac's Harbour River crossing; east side of road, south side of pipeline.	2005-10-27
6	Isaac's Harbour River crossing; west side of road, south side of pipeline.	2005-10-27
7	Isaac's Harbour River crossing; west side of road, north side of pipeline.	2005-10-27
8	North side of Salmon River crossing, looking south.	2005-10-27
9	Erinville/Lower Glencoe crossing; east side of access road, looking east.	2005-10-27
10	Erinville/Lower Glencoe crossing; west side of access road, looking west.	2005-10-27
11	West Erinville crossing; south side of access road along power line.	2005-10-27
12	West Erinville crossing; north side of access road along power line.	2005-10-27
13	Upper Springfield crossing; farmer's fields on west side of power line, north side of access road.	2005-10-27
14	Glenroy/Lower Springfield crossing; east side of access road, powerline.	2005-10-27
15	Glenroy/Lower Springfield crossing; west side of access road, powerline.	2005-10-27