

**BENJAMINS MILL WIND PROJECT  
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT  
ARCHAEOLOGICAL SCREENING 2021  
BENJAMINS MILL, NOVA SCOTIA**

DRAFT REPORT

Submitted to:  
**Dillon Consulting Limited**  
and the  
**Special Places Program of the  
Nova Scotia Department of Communities, Culture, Tourism and Heritage**

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Heritage Research Permit Number: A2021NS150  
CRM Group Project Number: 21-0032-01

JANUARY 2022



*The following report may contain sensitive archaeological site data.  
Consequently, the report must not be published or made public without  
the written consent of Nova Scotia's Coordinator of Special Places,  
Department of Communities, Culture, Tourism and Heritage*

## EXECUTIVE SUMMARY

Natural Forces is proposing to develop a wind energy project south of Benjamins Mills, Hants County. To investigate the potential for encountering archaeological resources during any development of the property, Cultural Resource Management Group Limited (CRM Group) has been retained by Dillon Consulting Limited (Dillon) on behalf of Natural Forces to undertake the desktop study phase (Archaeological Screening) of an Archaeological Resource Impact Assessment (ARIA) of the proposed study area.

Involving Mi'kmaw engagement and background research, the project was designed to identify, document, interpret, and develop an archaeological potential model of potential cultural resources within the potential impact area prior to infrastructure planning and the ground-truthing phase (Archaeological Reconnaissance) of the ARIA. This approach will provide an opportunity to potentially avoid areas of archaeological concern at the planning stage of the wind energy project. Recommendations for cultural resource management based on the results of the ARIA will not be made until the Archaeological Reconnaissance has occurred, which will be conducted under a separate Heritage Research Permit (HRP).

The Archaeological Screening was conducted by CRM Group Archaeologists Robert Shears, according to the terms of HRP A2021NS150 (Category 'C'), issued to Shears through the Special Places Program of the Nova Scotia Department of Communities, Culture, Tourism and Heritage (Special Places). This report describes the ARIA of the study area, presents the results of these efforts, and offers cultural resource management recommendations.

The Archaeological Screening phase of the ARIA determined that portions of the study area are preliminarily ascribed elevated potential for encountering Pre-contact and historic Mi'kmaw archaeological resources. Land within the study area situated within 50 metres from the shore or bank of a body of water or watercourse is ascribed high archaeological potential. Land from 50 to 80 metres from the shore or bank of a body of water or watercourse is ascribed moderate potential. Likewise, land within 200 metres of a registered Pre-contact archaeological site is ascribed high archaeological potential. The study area is preliminarily ascribed low potential for encountering early Euro-Canadian archaeological resources.

It is recommended that the areas of high and moderate archaeological potential, as depicted on the archaeological potential model be avoided when designing the proposed Benjamins Mill Wind Energy Project. It is also recommended that any proposed impact areas within the Benjamins Mill Wind Energy Project study area be subjected to the Archaeological Reconnaissance phase of the ARIA prior to any ground disturbance activity.

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**BENJAMINS MILL WIND PROJECT  
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT  
ARCHAEOLOGICAL SCREENING 2021  
BENJAMINS MILL, NOVA SCOTIA**

**1.0 INTRODUCTION**

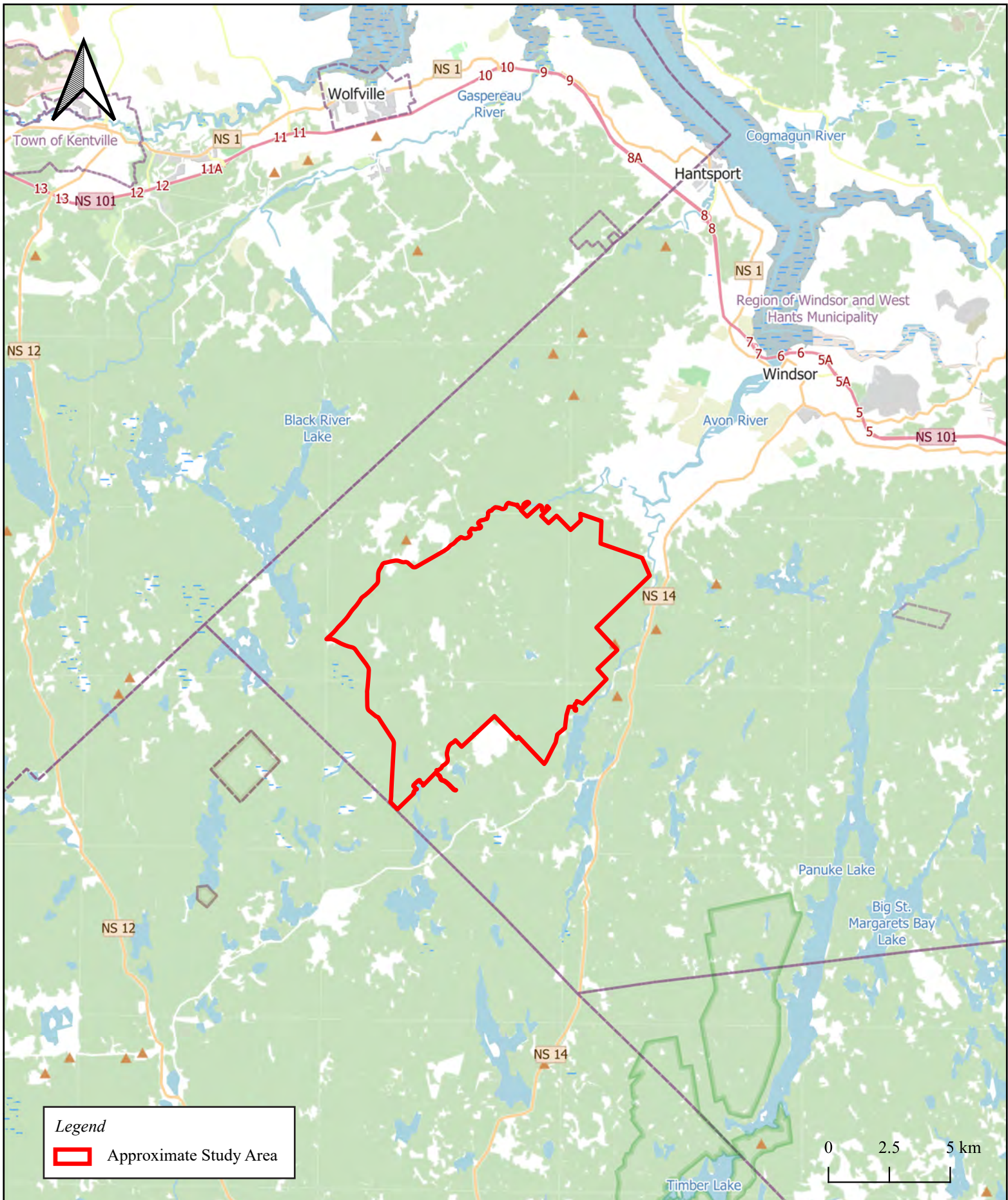
Natural Forces is proposing to develop a wind energy project south of Benjamins Mills, Hants County. To investigate the potential for encountering archaeological resources during any development of the property, Cultural Resource Management Group Limited (CRM Group) has been retained by Dillon Consulting Limited (Dillon) on behalf of Natural Forces to undertake the desktop study phase (Archaeological Screening) of an Archaeological Resource Impact Assessment (ARIA) of the proposed study area.


Involving Mi'kmaw engagement and background research, the project was designed to identify, document, interpret, and develop a potential model of areas of elevated archaeological potential within the study area prior to infrastructure planning and the ground-truthing phase (Archaeological Reconnaissance) of the ARIA. This approach will provide an opportunity to potentially avoid areas of archaeological sensitivity at the planning stage of the wind energy project. Recommendations for cultural resource management based on the results of the ARIA will not be made until the Archaeological Reconnaissance has occurred, which will be conducted under a separate Heritage Research Permit (HRP).

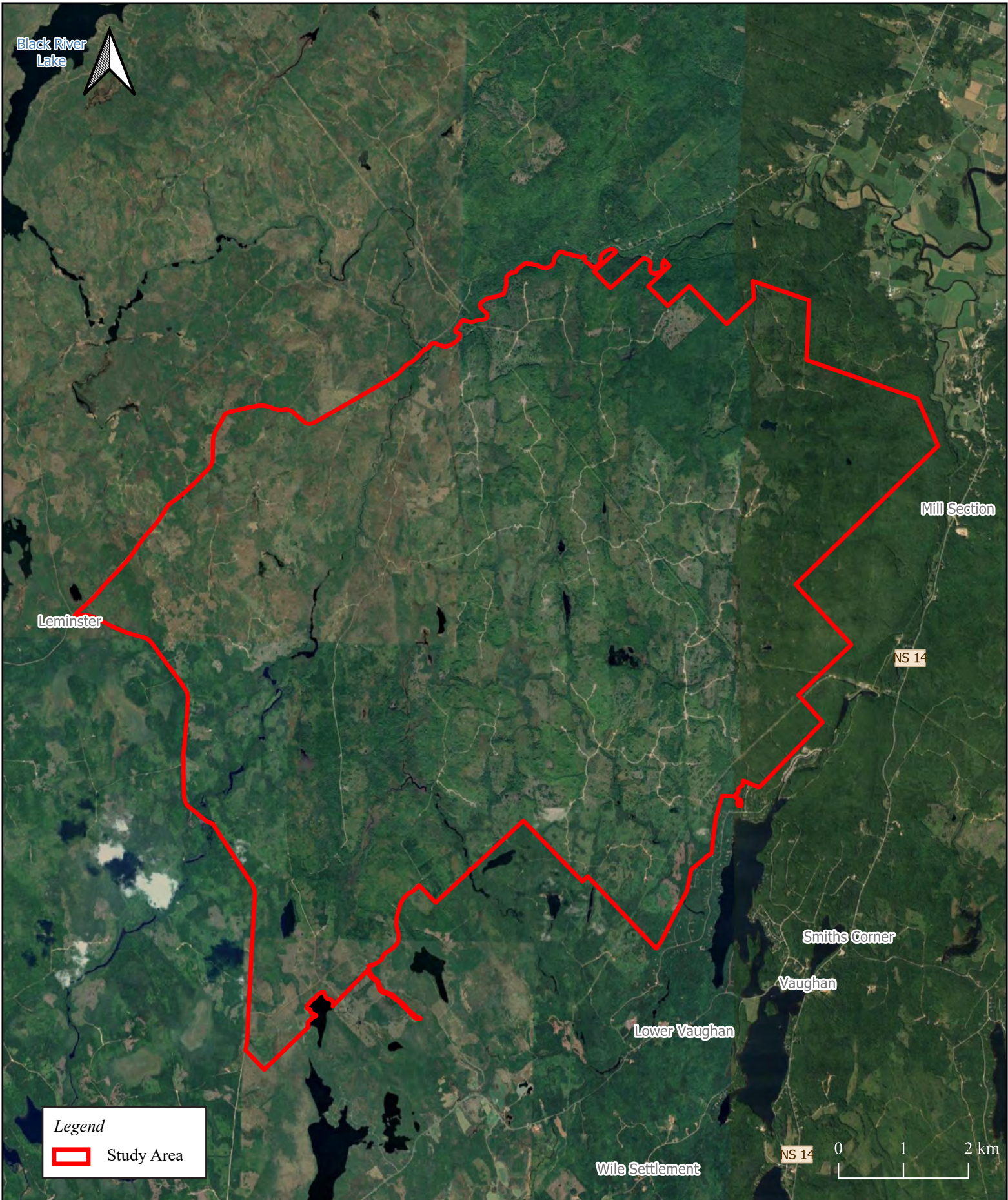
The Archaeological Screening was conducted by CRM Group Archaeologists Robert Shears, according to the terms of HRP A2021NS150 (Category 'C'), issued to Shears through the Special Places Program of the Nova Scotia Department of Communities, Culture, Tourism and Heritage (Special Places). This report describes the archaeological screening of the study area, presents the results of these efforts in the form of a background study and potential model. The potential model can then be considered during the planning stage of the wind energy project. Any proposed impact areas would then be subjected to the Archaeological Reconnaissance phase of the ARIA.

## 2.0 STUDY AREA

The proposed project is located at Benjamins Mill in West Hants. The study area is bounded in the west by the intersection of Hingley and Mines roads (UTM 20T 391397.79m E 4971665.83m N), in the north by Mines Road and the West Branch Avon River, in the east by a property boundary located approximately 115 metres west of the Avon River (UTM 20T 404519.98m E 4974331.28m N), and in the south by a point approximately 260 metres east of Hingley Road and 750 metres west of North Canoe Lake (UTM 20T 394259.32m E 4964581.32m N) (**Figure 1 & Figure 2**). The study area measures approximately 8,733 hectares.



|  |  |                  |
|--|--|------------------|
|  | <i>Approximate Study Area</i>  | <i>Figure 1</i>  |
|  | BENJAMINS MILL WIND PROJECT<br>ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT - SCREENING 2021<br>BENJAMINS MILL, NOVA SCOTIA | January 2022     |
|  |  | Scale: 1:200,000 |



*Detailed Study Area*

BENJAMINS MILL WIND FARM  
 ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT - SCREENING 2021  
 BENJAMINS MILL, NOVA SCOTIA

*Figure 2*

December 2021

Scale: 1:75,000

### 3.0 METHODOLOGY

In October of 2021, CRM Group was retained by Dillon, on behalf of Natural Forces to conduct the archaeological screening phase of an ARIA prior to the planning of a wind energy project in Benjamin Mills, Hants County. In keeping with Nova Scotia's *Special Places Protection Act Heritage Research Guidelines* (Guidelines) for Category 'C' Permits, this phase of the ARIA consisted of three components: Mi'kmaw engagement, background study, including archival research and a review of past archaeological investigations in the vicinity of the study area, and the development of an archaeological potential model.

#### 3.1 Mi'kmaw Engagement

CRM Group contacted the Kwilmu'kw Maw-klusuaqn Archaeological Research Division (KMK-ARD) to inform them of the various phases of the project and to request any information pertaining to traditional or historical Mi'kmaw use of the study area. The information provided by KMK-ARD assisted CRM Group in conducting background research with an approach that considered the diversity of views witnessed and experienced by a broad range of representative groups. The knowledge gained was used to broaden archival research to better understand the cultural and archaeological importance of the land upon which the study area is located and to formulate a relationship of information sharing.

#### 3.2 Background Research

The background study component of the project was designed to explore the land use history of the study area through archival research and review of previous archaeological assessments in the area to provide information necessary to evaluate the property's archaeological potential.

During this focused study, CRM Group utilized the resources of various institutions including documentation available through the Nova Scotia Archives, the Nova Scotia Crown Land Information Management Centre, the Department of Lands and Forestry Natural Sciences Library, the West Hants Historical Society, the Maritime Archaeological Resource Inventory (MARI), the Government of Nova Scotia's Open Data Portal, and the Nova Scotia Museum.

##### 3.2.1 Archival Research

The background study included a review of relevant historic documentation incorporating land grant records, legal survey and historic maps, and local and regional histories. Topographic maps and aerial photographs, both current and historic, were also used in conjunction with LiDAR data. This data facilitated the identification of environmental and topographic features that would have influenced human settlement and resource exploitation patterns. The historical and cultural information was integrated with the environmental and topographic data to identify potential areas of archaeological sensitivity.

#### 3.3 Previous Archaeological Assessments

Several archaeological investigations have been undertaken in relative proximity to the study area and one registered archaeological site exists within its boundaries. CRM Group reviewed the reports for assessments conducted within proximity to the study area, at the Castle Frederick complex of sites (HRPs A1987NS3, A1989NS7, A1989NS16, A1990NS15, A2011NS83) and at the Windsor Forks Site (BfDb-22). The research conducted under these assessments helps to enhance the archaeological understanding of the study area. Reviewing previous assessments can also aid in the application of the archaeological record to the natural environment, based on previous findings. All results and recommendations from previous assessments have been accepted by Special Places and continue to be upheld.

### 3.4 Archaeological Potential Model

Archaeological resources are not randomly distributed across the landscape. Human land use and resource exploitation follow patterns of resource distribution and are influenced by a variety of specific cultural, environmental, and geomorphological factors. Consequently, specific areas within a general landscape will have sustained differing degrees and types of utilization through time. Through preparation of an archaeological potential model, researchers attempt to identify the specific factors that may have contributed to the patterning of human land and resource exploitation.

Archaeological potential modeling can play a significant role in determining where archaeological assessments should be focused within our Maritime landscape. Potential modeling is an integrated approach to uncovering previously unknown archaeological sites and areas of archaeological potential by analyzing the geomorphology of the landscape through an examination of LiDAR Digital Elevation Models (LiDAR DEM), GIS-based data, and projections of past Relative Sea Level (RSL) positions, as well as noting the known history of the area. The goal is identifying the distribution of factors known to have governed past human land use and, thereby, to effectively model the distribution of zones of archaeological potential (low, moderate, or high) within the study area.

Advances in geospatial data processing and widespread production of LiDAR-derived digital elevation data, for Nova Scotia in particular, is enabling major improvements in development planning and operations, including the prediction and protection of archaeological and cultural sites. As part of this process, potential models are created for both Pre-contact and historic era sites, recognizing that the distribution of these types of sites vary.

The resulting archaeological potential model involves the integration of both inductive and deductive approaches to modeling cultural heritage resources. The inductive approach involves applying existing data regarding the known distribution of known archaeological resources, while the deductive approach involves applying extrapolations based on patterns observed in the existing data (Hamilton, 2000, p. 43). An example, the inductive approach is used when noting the distribution of registered sites recorded in the Maritime Archaeological Resource Inventory (MARI), while the deductive approach is used when applying the site distribution patterning noted in the MARI data to then project the likely distribution of undocumented archaeological resources within a given study area. While archaeological potential modeling can run the risk of perpetuating the oversimplification of human land use, it remains a useful tool in identifying areas of elevated archaeological potential.

The primary data layers used in the production of the archaeological potential model include:

- registered archaeological sites, inventoried in the MARI
- LiDAR DEM
- projected palaeoshorelines
- Nova Scotia Hydrographic Network
- Nova Scotia Roads
- Nova Scotia Protected Areas
- Nova Scotia Abandoned Mine Openings Database
- known cemeteries and burials
- Provincial or National Registered Historic Properties, Buildings, or Sites
- information gleaned from historic mapping and aerial photographs
- information gleaned from Mi'kmaw Request for Information

For refinement, potential models can also consider stream order, as well as soil type and drainage ratings.

When archaeological potential models are evaluated, the most common form of validation is through field testing. This testing would be in the form of archaeological reconnaissance and, potentially, a program of subsurface testing. The investigation would address not only areas ascribed elevated archaeological potential, but also select areas ascribed low archaeological potential.

## 4.0 RESULTS

The following are the results of the Screening Phase of the ARIA for HRP A2021NS150.

### 4.1 Mi'kmaw Engagement

On November 15, 2021, CRM Group contacted KMK-ARD requesting information regarding traditional or historic Mi'kmaq use of the study area. On December 1, KMK-ARD provided information that was taken into consideration when preparing the archaeological assessment. The Mi'kmaq traditional knowledge shared by KMK-ARD is confidential in nature and, out of respect for the sensitivity of the information, is not reproduced in this report.

### 4.2 Background Research

The following overview describes the environmental and cultural setting of the study area, summarizing and expanding upon the results of previous archaeological research and drawing upon the results of Mi'kmaw engagement. This background provides a framework for the evaluation of archaeological potential and interpretation of cultural resources in creation of the archaeological potential model.

#### 4.2.1 Environmental Setting

Several environmental factors such as glacial history, hydrology, topography, surficial geology, and flora have influenced settlement patterns and contribute to the archaeological potential of the area.

#### Glaciation

The Laurentide Ice Sheet, which once covered much of northern North America, reached its most recent glacial maximum across the Atlantic region by approximately 18,000 radiocarbon years before present (BP). Following retreat of the ice sheet, by approximately 13,000 BP, crustal suppression, combined with sea level rise, resulted in marine inundation in parts of the Bay of Fundy reaching inland to a maximum elevation of approximately 41 metres above sea level (ASL) (Fader, 2005, p. 17).

Due to subsequent crustal rebound and glacial re-advance of the Younger Dryas Chronozone (ca. 15,000 to 13,500 BP), by approximately 10,000 BP, sea level had rapidly lowered to approximately 60 metres below modern ASL (Fader, 2005). This would have resulted in inner and northern portions of the Bay of Fundy being at least partially subaerially exposed. Shorelines within the Minas Basin would have been lower than modern levels, but their exact location would have depended on tidal amplitude and flow rates of a post-glacial rivers. If a linear progression of sea level regression is assumed over this three-thousand-year period, Palaeo sea level would have matched modern levels at approximately 11,700 BP, and by the time of first known human occupation in the region, at the Debert/Belmont sites, at approximately 10,600 BP, sea level would have been approximately 40 metres below modern levels. This eliminates the possibility of a Palaeo shoreline within the study area during the period of first human occupation of the region.

#### Topography

The study area is located in the greater ecological region known as the *Western– South Mountain* ecodistrict (Unit 720) (Neily, Basquill, Quigley, & Keys, 2017, p. 186). The study area also borders the southeast edge of the *Valley and Central Lowlands – Central Lowlands* ecodistrict (Unit 630) (Neily, Basquill, Quigley, & Keys, 2017, p. 174). The *South Mountain* ecodistrict extends 150 kilometres in a long arc from east of the Sissiboo River in the west, to Panuke Lake in the east, and measures 75 kilometres north to south. In general, the ecodistrict's hummocky, rocky landscape slopes towards the Atlantic Ocean, however the study area is situated within the Avon River watershed that flows into the Minas Basin (**Figure 3**). The area has the highest elevations in western

Nova Scotia, at about 289 metres ASL, with a mean elevation of 175 metres ASL (Neily, Basquill, Quigley, & Keys, 2017, p. 186). Elevation within the study area ranges from approximately 38 metres along the West Branch Avon River at the northern boundary of the study area, to its highest point, Moses Mountain, in the southern portion of the study area, at 264 metres ASL.

### Surficial Geology

The ecodistrict is predominately classified as *Gibraltar* series soils (Soil Types: ST2, ST2-G, ST1, ST15, ST15-G), with some *Nictaux* (ST1, ST15, ST2) and *Peat* (ST14, ST4) soils also present (Keys, 2007, pp. 34-35). Derived from granite, *Gibraltar* soils within the ecodistrict are generally well-drained, yellowish brown, sandy loams. This series of soils is generally very stony and prone to natural cementation. *Nictaux* soils, derived from deep deposits of gravel or coarse silica sand, are typically well-drained, loamy sands. *Peat* soils generally consist of poorly drained, partially decomposed, organics deposited in depressional areas over varying mineral materials. Soils within the study area are part of the of *Gibraltar* Series with some *Swampy Land* in wet areas.

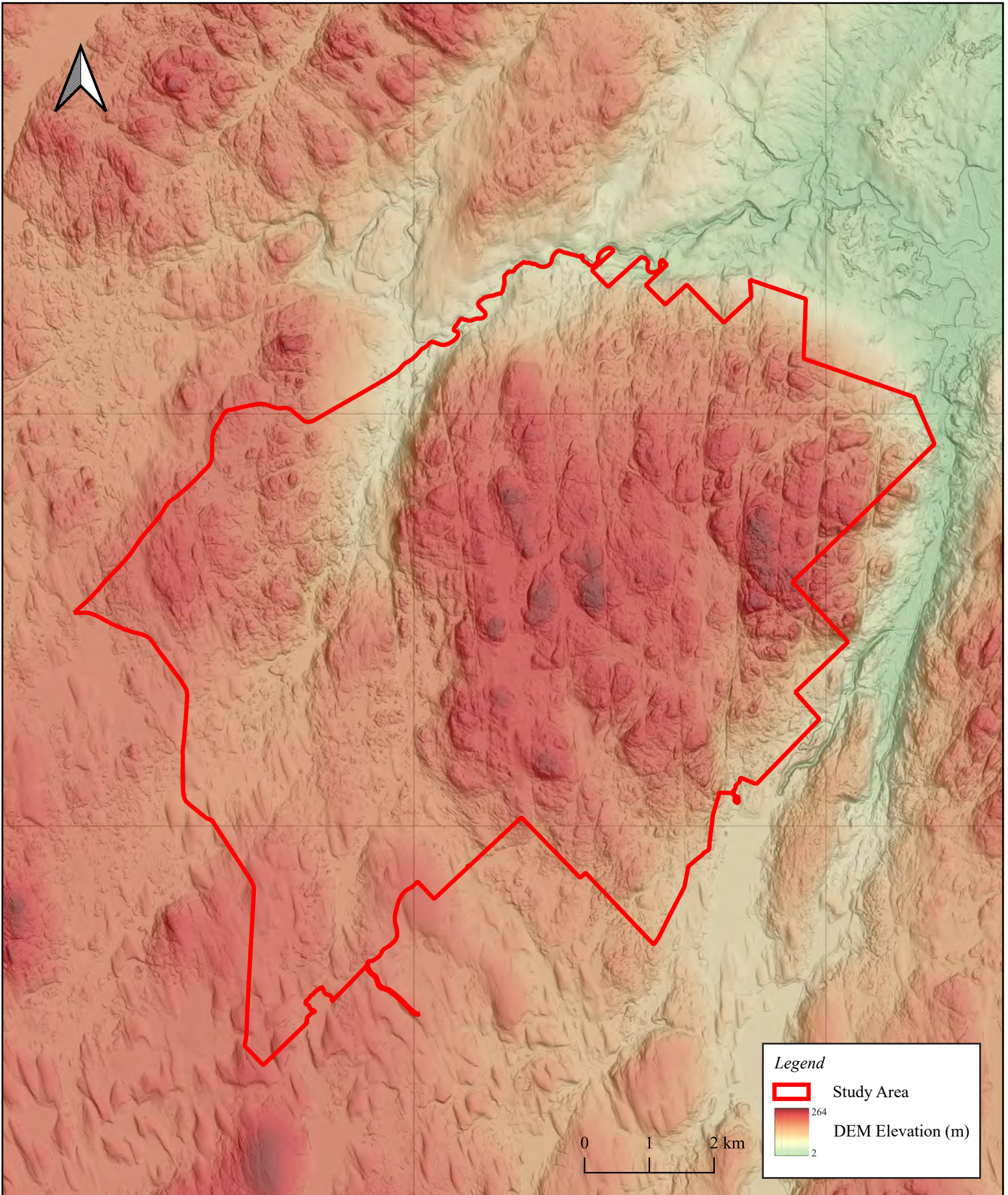
### Hydrology

The *South Mountain* ecodistrict is characterized by abundant lakes, rivers, and wetlands. The study area borders an approximately 4.7-kilometre-long section of the West Avon River and encloses the entire 4.7-kilometre length of the Southwest Avon River. The study area contains several other named (such as Mint River) and unnamed tributaries of the Avon River, as well as a number of lakes including Pine Lake, Five Island Lake, Bennett Lake, Burnt Lake, Halfmoon Lake, and Upper Chain Lake. Positioned adjacent to or within a one-kilometre buffer surrounding the study area are the Avon River, Black River Lake, Chain Lake, Bills Lake, Lower Salters Lake, Falls Lake, and Splash Dam Lake.

### Flora

The *South Mountain* ecodistrict is a rugged upland dominated by pine and spruce forests. Red oak, red pine and white pine are commonly found where soils are dryer, very coarse, and less fertile, like those found throughout the study area. Growth potential of all forests in this ecodistrict is greatly influenced by the granite till and surface stoniness (Neily, Basquill, Quigley, & Keys, 2017, p. 187).

Typical woodland flora includes bunchberry, wild lily-of-the valley, bluebead lily, sarsaparilla, and starflower. Blueberry, huckleberry, teaberry, witch-hazel, lambkill, and bracken are also common (Neily, Basquill, Quigley, & Keys, 2017, p. 188). Many of these plants are known traditional Mi'kmaw medicinal plants. Bunchberry can be used to treat kidney and stomach ailments, as well as applied topically to treat wounds (Lacey, 2012, p. 80). Wild sarsaparilla has several medicinal uses including application as a poultice to treat wounds, and for treating cold and influenza symptoms (Lacey, 2012, p. 64). Aside from the berries being used as a general tonic, the leaves and roots of the blueberry bush can be used to treat rheumatism (Lacey, 2012, p. 43). Aiding in the prevention of blood clots, steeped Teaberry can be used in the recovery from heart attack or stroke (Lacey, 2012, p. 92). Witch hazel, prepared as a tea, is used to treat headaches as well as an aphrodisiac; applied topically it can be used to treat rash and swelling (Lacey, 2012, p. 65). Though poisonous if ingested, lambkill can be used topically to reduce inflammation (Lacey, 2012, p. 14).



#### 4.2.2 Cultural Heritage Context

The following section details the cultural heritage of the study area in a broader context including an examination of nearby registered archaeological sites, protected areas, cemeteries, National Historic Sites, Historic Districts, and plaques and monuments to better our understanding of the study area’s cultural significance.

##### Registered Archaeological Sites

In Nova Scotia, information regarding archaeological sites is stored in the MARI, a provincial archaeological site database, maintained by the Nova Scotia Museum. This database contains information on archaeological sites registered with the province within the Borden system. The Borden system in Canada is based on blocks of latitude and longitude. Each block is referenced by a four-letter designator. Sites within a block are numbered sequentially as they are recorded. The study area is located at the northern end of the BfDb Borden Block.

A review of the MARI determined that there is a single registered archaeological site within the proposed study area. Site BfDb-03, the S.W. Avon Site, located within the project study area, represents the isolated recovery of a ground slate point near a tributary of the Avon River during the installation of the transmission line extending through the study area. In addition, several registered sites are located within a one-kilometre radius (*Table 1*).

**Table 1: Registered Archaeological Sites in within One-Kilometre of the Study Area**

| Borden Block | Borden Number | Site Name                  | Tradition/Nature of Site | Description                               |
|--------------|---------------|----------------------------|--------------------------|---|
| BfDb         | 3             | S.W. Avon                  | Mi’kmaq                  | Isolated Find within study area           |
| BfDb         | 4             | Castle Frederick           | Historic                 | Rectangular Depression; Estate            |
| BfDb         | 5             | BfDb-05                    | Historic                 | Housepit and Baking Oven                  |
| BfDb         | 7             | BfDb-07                    | Historic                 | Curvilinear Depressions; Midden           |
| BfDb         | 8             | BfDb-08                    | Historic                 | Rectangular Structure; Settlement Feature |
| BfDb         | 9             | Devenney Farm 1            | Mi’kmaq                  | Lithics                                   |
| BfDb         | 10            | Devenney Farm 2            | Historic                 | Midden                                    |
| BfDb         | 14            | Falls Lake Site 3          | Mi’kmaq                  | Lithic Scatter                            |
| BfDb         | 15            | Falls Lake Site 4          | Mi’kmaq                  | Late Archaic                              |
| BfDb         | 16            | Falls Lake Site 5          | Mi’kmaq                  | Late Archaic & Maritime Woodland Site     |
| BfDb         | 17            | Falls Lake Site 6          | Mi’kmaq                  | Lithic Scatter                            |
| BfDb         | 19            | Falls Lake Historic Site 1 | Historic                 | Saw Mill                                  |
| BfDb         | 22            | Windsor Forks Site         | Mi’kmaq & Historic       | Late Archaic & Historic Agricultural      |

##### Cemeteries or Individual Burial Plots

The combined results of background research, engagement, and archaeological reconnaissance yielded no evidence of human burials in the vicinity of the study area. The nearest known cemetery is referenced on the MARI for BfDb-22. A small historic cemetery adjacent to a property on Mountain View Drive is approximately 1.5 kilometres north of the study area. Designated the Redden Family Cemetery, it has burials dating to ca. 1772.

##### National Historic Sites

The results of background research yielded no evidence of National Historic Sites within the vicinity of the study area. The nearest National Historic Sites are in Windsor: The Chapel on the King’s

College grounds in Windsor, NS approximately 10.3 kilometres northeast, and Fort Edward approximately 11.4 kilometres northeast of the study area.

### **Designated Special Places**

The results of background research yielded no evidence of Designated Special Places within the vicinity of the study area.

### **National or Provincial Parks**

The results of background research yielded no evidence of National or Provincial Parks within the vicinity of the study area. However, the Falls Lake Provincial Park is approximately 1.5 Kilometres southeast of the study area.

### **Protected Areas**

The following crown lands (DNR ids) are within the study area: 10506, 10534, and 10535. Crown lands amount to 964.75 hectares of coverage within the northeast portion of the study area. The Moses Mountain hiking trail is approximately 10 metres from the eastern boundary of the study area at its closest point. The nearest protected wilderness area is South Panuke Wilderness Area, approximately 9.2 kilometres southeast of the study area.

### **Registered Heritage Properties**

The nearest registered heritage property to the study area is a Municipally Registered Property known as All Saints Anglican Church, located at 652 New Ross Road, Leminster, approximately 2.5 kilometres southeast of the study area. The structure is a simple wood frame Gothic Revival church built in 1872 (Parks Canada, 1993).

### **Mi'kmaw Cultural Landscape**

*Archaeology can tell us where the People lived, and much about their imperishable materials, like stone. It can show us the rocks of their hearth-fires and the bits of bone or seeds in the ash. None of this, however, can tell us much about what the People thought or felt, the conversations they had while they cooked and ate their moose and groundnuts. Archaeology can[not] show us their hearts, and neither can recorded history (Whitehead, 2013, p. 1).*

Recently, archaeological studies have trended towards a more comprehensive understanding of the ecological, socio-cultural, and economic values of a traditional Mi'kmaw cultural landscape, rather than a study solely based on cultural materials (artifacts). Geological features are of principal importance when considering cultural landscapes (Lewis, 2018, p. 1).

Roger Lewis, Curator of Mi'kmaq Cultural Heritage at the Nova Scotia Museum, identifies cultural landscapes fundamentally as landscapes that have been affected, influenced, or shaped by human involvement. A cultural landscape can be associated with a person or event or a combination of both. Collectively, cultural landscapes are narratives of culture, and expressions of identity (Lewis, 2018, p. 1).

As Sable and Francis detail, the Mi'kmaw concept of *weji-sqalia'timk* expresses the Mi'kmaw understanding of the origin of its people as rooted in the landscape of Mi'kma'ki, or the territory of the Mi'kmaq (Sable & Francis, 2012, p. 17). The term conveys the dynamic interrelationship between the Mi'kmaq and their ancestral landscape; a landscape that is reflected in Mi'kmaw legends and placenames (Sable & Francis, 2012, p. 19).

Mi'kmaw legends illustrate the extensive knowledge Mi'kmaq had of the diverse resources found

throughout Mi'kma'ki, including resources needed for tools. These tools themselves reflect the unique geological formations of the area. In turn, geological formations feature prominently in legends, which acted as oral maps of the area (Sable & Francis, 2012, p. 19). These traditions are experienced and interpreted through legends, stories, music, and spiritualism, which all contain knowledge and references relating to the landscape as 'place' (Lewis, 2018, p. 2).

One of these legends identifies the crest of Blomidon as Kluskap's dwelling place. Observing Blomidon and recalling its legends is part of the lives of those who dwell in sight of this cape, including the residents of Windsor/Falmouth. One of these stories tells of how Kluskap created the Five Islands, across the Minas Basin, by throwing handfuls of mud (Port Willaims Women's Institute, 1976, p. 195). Others that reveal elements of the Mi'kmaw cultural landscape in the vicinity of the study area include the following:

*But the most remarkable personage of their traditions is Glooscap. The Indians suppose that he is still in existence, although they do not know exactly where. He formerly resided in Nova Scotia, but, of course, shifted his habitation. He was, to say the least, almost an object of worship. He looked and lived like other men; he ate, drank, smoked, slept, and danced along with them. But he never died, never was sick, never grew old. He lived in a very large wigwam. Cape Blomidon still bears his name, Glooscapweek (Glooscap's home). The Basin of Minas was his beaver-pond, - for he had everything at a large scale. The dam was at Cape Split; and we are indebted to this wondrous personage, so goes the tradition, for the privilege of sending our ships down this passage. For there he cut open the beaver-dam, - and the fact is established by the name which it still bears. The Indians call it Pleegum (the opening made in a beaver dam). That is still its name; and two rocks, somewhat resembling dogs seated on their haunches, near u'toowome (his kettle) are called u'teck (his dogs). The kettle is now bottom upward, and the dogs were transformed into rocks when he went away. His canoe was also of stone . . . Glooscap gave vent to his anger, and in his rage, abandoned the country, turned over his kettle as he went off, and changed his dogs into rocks. There the faithful sentinels still keep watch; and when he returns he will be as able to restore them to their former life as he was at his departure to fix them where they now are (Rand, 1894, pp. xliv-xlvi).*

*Before going further up the bay, Glooscap now crossed over to Utkogüncheech (Cape Blomidon). There he arrayed and adored his aged female companion, decked her out with beautiful beads and strings of wömpüm, making her young, active, and beautiful, and for her sake making all those beautiful minerals for which the 'hoary cape' has been so long celebrated. My aged friend, Thomas Boonis, who related this narrative to me, assured me with much animation that he had seen these beautiful minerals with his own eyes, - emphasizing his assertion by saying in broken English. 'Glooscap, he makum all dese pretty stone' (Rand, 1894, p. 291).*

*Kluskap, the giant, legendary Mi'kmaw figure, wanted to take a bath. He called his friend Beaver and told him to find some water. Beaver built a huge dam across the mouth of a great river. Water backed up behind the dam and stopped flowing into the sea. As Kluskap stepped into the water, Whale stuck her head over the dam and asked, 'Why have you stopped this water from coming to my domain?' Not wanting to anger his friend, Kluskap got up and walked back to land. With a stroke of her mighty tail, Whale destroyed the dam and sent salt*

water flooding into the river. As she turned and swam back out to sea, she set the water of the Bay sloshing back and forth, a movement it has kept to this day (Confederacy of Mainland Mi'kmaq, 2007, p. 20).

Mi'kmaw placenames can also tell the story of the land, including features of the landscape, historic events, and important resources (Sable & Francis, 2012, p. 42). Mi'kmaw methods of naming a place, while a verb-based language, frequently reflect the meaning of the area to the Mi'kmaq, such as the resources available or the landscape features of the area. This type of naming relies on an intimate understanding and repeated use of an area. Traditional Mi'kmaw placenames in proximity to the study area are listed in the table below (**Table 2**).

**Table 2: Traditional Mi'kmaw place names near study area (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019)**

| Traditional Name          | English Translation               | Contemporary Name           | Distance from Study Area |
|---------------------------|-----------------------------------|-----------------------------|--------------------------|
| <i>Apukji'jue'katik</i>   | Place of the mice                 | Pine Lake                   | --                       |
| <i>Amaqapskiket</i>       | Flowing over rocks                | Avon River                  | --                       |
| <i>Apsetkwijk</i>         | Small River                       | Avon River West Branch      | --                       |
| <i>Amaqapskikejk</i>      | Smaller stream flowing over rocks | Avon River Southwest Branch | 10 m E                   |
| <i>Pesikith / Tuitnuk</i> | To flow splitwise                 | Avon River Forks            | 2 Km NE                  |
| <i>Niktue'k</i>           | At the forks                      | Windsor Forks               | 2.98 km NE               |
| <i>L'nui-Maqmikew</i>     | Reserve land                      | New Ross Reserve No. 20     | 4.61 km SW               |
| <i>Kwesawatqek</i>        | Thickly wooded point              | Falmouth                    | 8.61 km NE               |
| <i>Pesikith</i>           | To flow splitwise                 | Windsor                     | 9.96 km NE               |
| <i>Panuk</i>              | At the opening                    | St Croix Reserve No.34      | 10.22 km E               |

The Mi'kmaw name for Windsor is *Pesikith*, which translates to “to flow splitwise” (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019), from which the Acadian period name for the region, Piziquid, is derived. The Mi'kmaq name for Falmouth is *Kwesawatqek*, meaning “thickly wooded point”. The Mi'kmaq name for the main branch of the Avon River is *Amaqapskiket*, meaning “flowing over rocks” (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019). The Avon River West Branch is known as *Apsetkwijk*, meaning “small river” (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019). Pine Lake, within the study area, is known as *Apukji'jue'katik*, meaning “place of the mice” (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019). Panuke Lake is a derivation of the Mi'kmaq word *Panuk*, meaning “at the opening” (Ta'n Weji-sqalia'tiek Mi'kmaw Place Names Digital Atlas, 2019).

*Amaqapskiket*, or the Avon River, would have been an important transportation corridor facilitating travel inland from the Minas Basin, and providing a resource base for the Mi'kmaq, their ancestors and predecessors for millennia prior to the arrival of European settlers. The river would also have been a significant source of salmon, trout, and other fish species.

The nearest contemporary First Nation lands, approximately 4.6 kilometres southeast of the study area and originally surveyed in 1866, are located at New Ross Indian Reserve Number 20 (New Ross No. 30), a 405-hectare plot of land accessed by Red Shirt Road and is part of the Sipekne'katik First Nation. The lands, originally surveyed in 1866, are visible in the Crown Land Index Sheet 45 as, “Indian Reservation No 20” (**Figure 4**).

In 1907, heirs of politician Philip Carteret Hill conveyed the lands of the Micmac Missionary Society

to the Crown to create Horton (now Glooscap) IR35 Reserve, approximately 18 kilometres from Windsor, 6 kilometres from Hantsport, and 10.5 kilometres north from the study area (Hill, 1907). Geopolitical boundaries and foreign place names seen on contemporary maps did not exist prior to the European exploration and ultimate colonization of Mi'kma'ki beginning in the seventeenth-century. Rather, the Mi'kmaq recognized seven "districts," still organized today, with an eighth, *Ktaqmukuk* (Newfoundland) added in 1860 (Sable & Francis, 2012, p. 19). These district boundaries likely would have followed naturally existing water basins, formed by the principal river systems. The myriad of rivers, streams, and lakes in these systems provided a valuable resource base as well as acted as the main transportation routes for social, economic, and political interactions among the Mi'kmaq (Sable & Francis, 2012, p. 20).

The study area is part of the greater Mi'kmaw territory known as *Sipikne'katik* meaning 'area of wild potato/turnip' (*Plate 1*) (Sable & Francis, 2012, p. 21). These natural boundaries were most likely flexible and permeable, reflecting changing conditions and the needs of people in each area, rather than acting as geopolitical boundaries (Sable & Francis, 2012, p. 21).

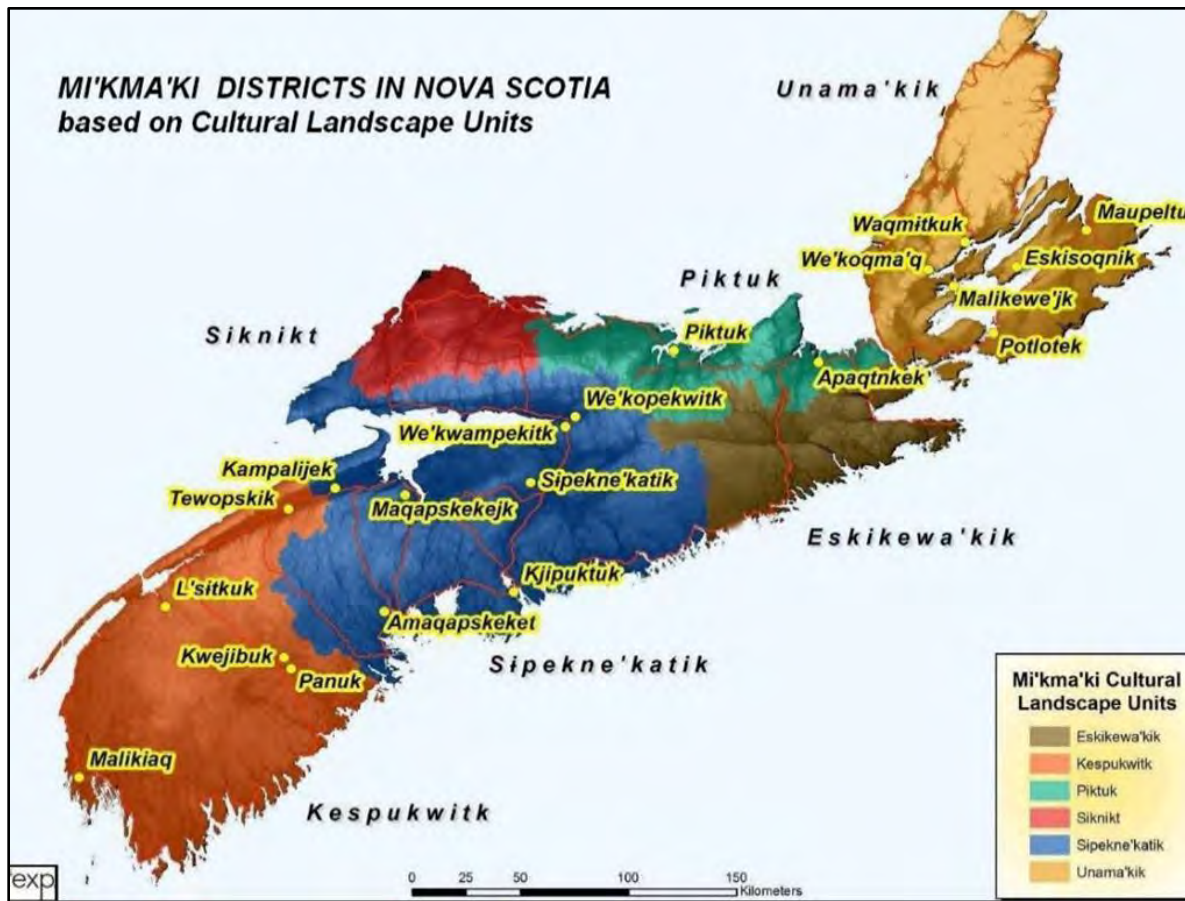
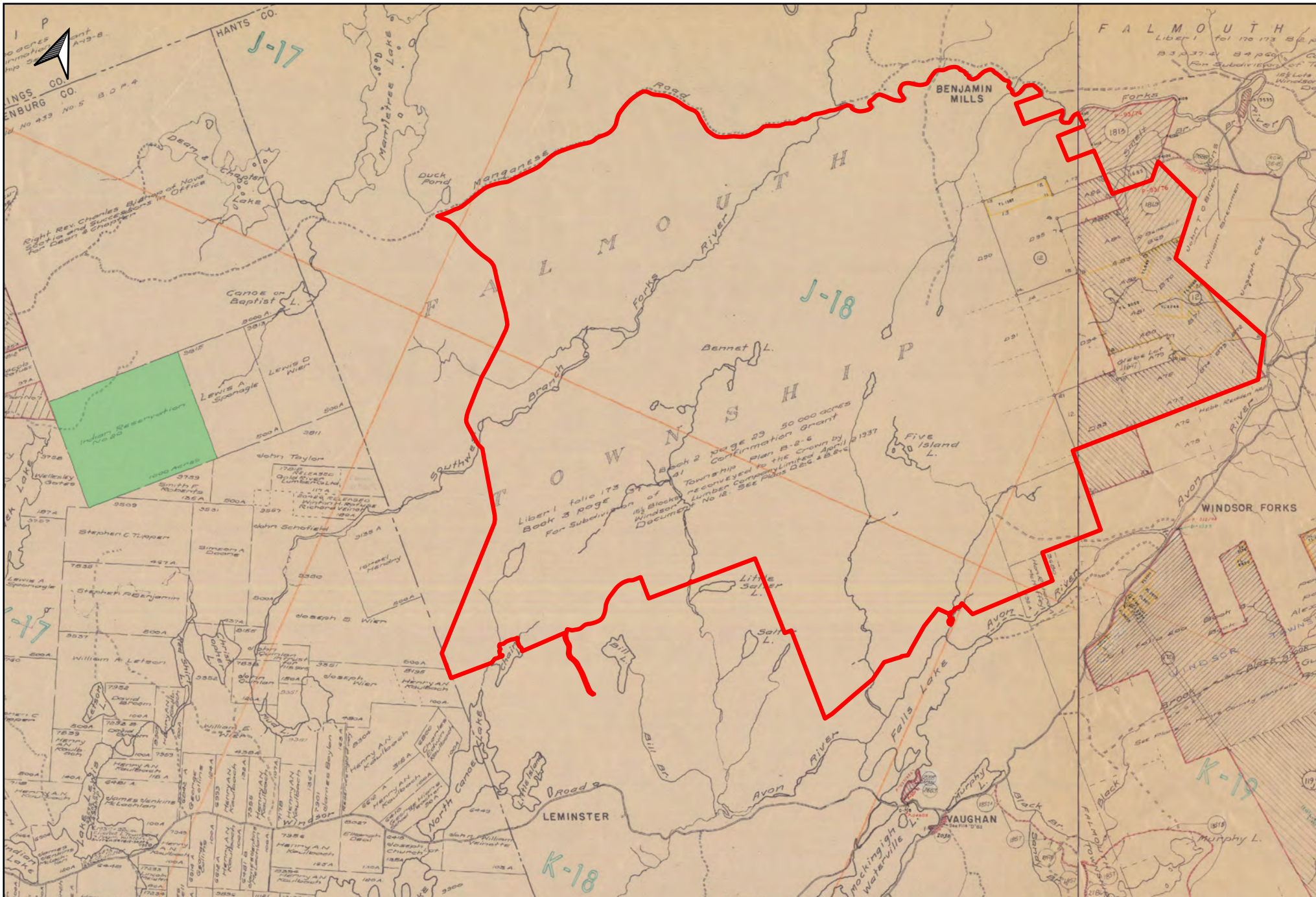


Plate 1: Mi'kma'ki Districts in Nova Scotia based on Cultural Landscape Units (Mi'kma'ki All Points Services Inc., 2018, p. 16).



Crown Land Index Sheets Nos. 45 & 54

BENJAMINS MILL WIND PROJECT

ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT - SCREENING 2021

BENJAMINS MILL, NOVA SCOTIA

Figure 4

January 2022

Legend

- Approximate Study Area
- New Ross No. 30



### 4.2.3 Land Use History

Investigating Pre-contact and historic Mi'kmaw, as well as early Euro-Canadian and African-Nova Scotian land use – the modification of the natural environment for the purposes of habitation, agriculture, or other industry or activity – is essential in evaluating the archaeological potential of a given study area.

#### Pre-contact Land Use

The earliest human inhabitants of the Maritime Provinces are known as *Saqiwe'k L'nuk*, meaning the "Ancient People" (CMM 2007: 1). Present within what is known as the Palaeo period (11,000 to 9,000 years BP), these ancient peoples may have arrived at the Maritime Peninsula because of changing periglacial environmental conditions that made the area a haven for caribou and other game animals (Deal, 2016; Sanders, 2020).

The earliest evidence of people on the land in Mi'kma'ki was found in present day Debert, located approximately 77 kilometres northeast of the study area. The Palaeo habitation sites in the Debert/Belmont Complex, distributed along a sandy ridge south of the Cobequid Mountains, were occupied approximately 11,000 years BP. Radiocarbon Dating has suggested that the site was occupied during the extreme cold of the Younger Dryas Chronozone (*ca.* 12,800 to 11,700 cal BP), when a global reduction of average annual temperature caused local forests to return to tundra, and caused remnant glaciers in the Cobequid Mountains to re-advance (Sanders, 2020, p. 22).

The archaeological record, through the presence of sites BfDb-03 and BfDb-22, indicates that the Mi'kmaq were active within and surrounding the study area at least since the time of the *Mu Awsami Saqiwe'k* (not so recent people), otherwise known as the Archaic Period, sometime between 10,000 to 3,000 B.P. Numerous other sites in the area are attributed to the *Kejikawek L'nuk* (recent people), or the Woodland Period, from 3,000 to 500 B.P.

Occupation of the region by the Mi'kmaq into the historic period is indicated in mapping from the eighteenth century, which includes reference to a Mi'kmaq village ("Village Sauvage") in the Piziquid region, between the Avon ("R. de Pigiguit") and St. Croix Rivers (**Figure 5**). The map also depicts a road ("chemin") or portage route from the St. Croix River/Panuke Lake system to Saint Margaret's Bay ("H. Prospec") on the Atlantic coast.

According to another local tradition, a group of Mi'kmaq known as the Amquaret camped at a spot called Indian Orchard, located at the head of tide on the Avon River (Duncanson J. V., 1983, p. 45; Redden, 2001, p. 71). Amquaret was apparently "the family name of most of the band that numbered fifty-three souls when they were moved to Shubenacadie Reserve late in the nineteenth century" (Redden 2001: 25). Indeed, Pre-contact artifacts, including a projectile point and some flakes, were reported in the area, which is now a registered archaeological site (BfDb-9).



## Historic Land Use

The region was first settled by Europeans in the 1680s, when Acadian settlers, drawn to the area for its dyke-able salt marshes, first began establishing communities outside of the Port Royal (Annapolis Royal) area. Ironically, the rapid development of the region by the Acadians is demonstrated in the account of the 1704 raid on Piziquid by Colonel Benjamin Church. During Queen Anne's War (1702-1713), in response to the February 1704 French and Wabanaki Confederacy raid on Deerfield, Massachusetts, Church led what would be his fifth and final military expedition into the region. The expedition included raids on Penobscot (Castine, Maine), Salmon Falls (Milltown, New Brunswick) and at Piziquid, among other locations (Benjamin Church, 1851; Griffiths, 2005; Hody, 1974). The attack at Piziquid resulted in the burning of 40 houses and outbuildings, livestock, and the breaking of dykes to destroy crops. In the engagement, one Mi'kmaq man was killed, and several others were wounded.

Despite the attack and other calamities, such as a forest fire in 1710 that swept between the Gaspereau and Pisiguit rivers, possibly affecting the study area, a census taken a decade after the Church attack shows a community rebuilt, with 65 households at 'de la Riviere Pisiguit' (Duncanson J. V., 1983, p. 66; LeBlanc Consentino, 1998). There were at least five distinct Acadian villages located on the Falmouth side of the Avon River, situated along tidal marshes from Hantsport to the head of tide at Upper Falmouth. Included among these are those located at the Castle Frederick complex of sites, situated just northeast of the study area (**Figure 6**) (Duncanson J. V., 1983, p. 4).

In 1722, the Catholic parish at Piziquid was divided into two units, with the eastern side of the river retaining the original name of la paroisse de l'Assomption (Windsor) and the creation of a new parish on the western side, named la paroisse de Sainte-Famille (Falmouth). By 1727, approximately 160 Acadian families were recorded living along both sides of the river (Duncanson J. V., 1983, pp. 5-7).

The fragile peace that existed between Britain and France from the end of the War of the Austrian Succession (1740-48) to the beginning of the Seven Years' War (1756-1763) saw a build-up of military forces in the area by both sides. The region had just witnessed the French capture of Canso (1744), two unsuccessful French assaults on the fort at Annapolis (1744) and the capture of Louisbourg by New England forces (1745). The Treaty of Aix-la-Chapelle (1748), to the displeasure of New England, mandated the return of Louisbourg to the French, which they immediately began rebuilding and reinforcing. To substantiate their claim to the territory west and north of the isthmus of Chignecto, the French also began building a series of forts in the region, most notably Fort Beauséjour (Duncanson J. V., 1983).

In part to respond to the threat of Louisbourg, the British decided to build a major settlement on the Atlantic coast at Halifax, and to move their capital there. They also built a blockhouse at Grand Pré, Fort Sackville on the Bedford Basin, Vieux Logis at Grand Pré, and Fort Edward at Piziquid (Clark, 1968, p. 333). Historic mapping from 1750 by Samuel Holland shows domestic occupation along both banks of the Avon (Piziquid) River, the east bank of the St. Croix River and roads leading from Vieux Logis to Fort Edward and From Fort Edward to Fort Sackville in the east (**Figure 6**). Chief Surveyor Charles Morris indicates that there were about 1,400 people living along the Piziquid River, with 800 on the left bank, 100 on the right bank & along the Kennetcook River, and about 500 on the St. Croix River (Clark, 1968, p. 217). Fort Edward played a significant role during the French and Indian War (1754-1763) and was used to hold Acadian prisoners as they were notified of their Deportation.

Referencing the use of the St. Croix River by the Mi'kmaq, historian Mather Byles DesBrisay describes how, in 1756, a Mi'kmaq attack on the Payzant family near Lunenburg, on the province's

south shore, resulted in the death of Payzant and others, and the capture of his wife and four children. The captives were then transported to Quebec via Chester to the St. Croix River, entering the Bay of Fundy at Windsor and traveling to Cape Chignecto, then on to Fredericton (DesBrisay, 1870, pp. 154-156).

Following the Deportation, New England Planters began to settle the recently vacated Acadian lands, establishing the Townships of Falmouth in 1760 (along with Horton and Cornwallis townships) and Windsor in 1764 (Shand, 1979; Duncanson J. V., 1983, pp. 10-11). The study area, situated some distance from the Falmouth town site, was granted to its proprietors in 1759 (Public Archives of Nova Scotia, 1967, p. 700). Land within the western portion of the township was divided into 400-acre lots, while lots within the eastern portion of the study area, closer to the Avon River Valley, were divided into 100 to 200 acre lots (**Figure 7**). Of note, Lot A79, in the southeast portion of the study area is listed as a glebe lot. Additionally, portions of lots D93 to D96, in the eastern half of the study area were issued to army officer, landowner, and office-holder Colonel Henry Denson, namesake of Mount Denson. Additional research into the history of land grants within the study area may reveal further information on landownership. Following the American Revolution, an additional influx of United Empire Loyalists settled in the area.

Castle Frederick, located northeast of the study area, was the 8,000-acre estate of cartographer, lieutenant governor of Cape Breton and Governor of Prince Edward Island, Joseph Frederick Wallat DesBarres. Established upon the former Landry family village, Castle Frederick would serve as DesBarres' base of operations from 1764 to 1773 (**Plate 2**) (Morgan, 1987). DesBarres' "Plan of Nova Scotia" is one of the most important maps of the region from the eighteenth century. In his depiction of the Falmouth area, Castle Frederick is clearly indicated (**Figure 8**).



**Plate 2: Water colour of the Castle Frederick Estate, 1776 (Duncanson J. V., 1983, p. 25).**

In 1857, the Nova Scotia Railway extended to Windsor and the area became a centre for shipping, shipbuilding, and gypsum mining. In 1878, Windsor was incorporated as a town (Shand, 1979). An examination of historic mapping from 1871 revealed that at least one dam was constructed on the Avon River, just north of Falls Lake, but that no development had occurred within the study area (**Figure 9**). Several residences, belonging to the Patterson, and Barkhouse families, among others, are depicted just north of the study area, positioned along the beginnings of Mines Road. The communities of Windsor Forks, Mill Section (known as Mill Pond), and Vaughn (known as Waterville) are developed by this time.

During his visit to Nova Scotia in 1860, Edward, Prince of Wales (later King Edward VII), went on a hunting expedition with Mi'kmaq guides, Tom Phillips, Frank Paul, Newell Jeremy, and [no first name] Paul, who took him "into Ponthook, from Windsor" (Whitehead R. H., 2002, p. 16). In 1881, several Mi'kmaq are listed living in Saint Croix (Wicken, 2010, p. 1).

From 1896 to 1911, businessman S.P. Benjamin operated a sawmill on the West Branch Avon River (not to be confused with an earlier operation at White Rock, on the Gaspereau River) (**Plate 3**). The mill reportedly contained a cookhouse and bunkhouse (Fry, 2021). As part of the history of forestry in the region, in 1937, several woodlots within the study area were transferred from the Windsor Lumber Company to the Crown.



**Plate 3: Early twentieth century photo of the S. P. Benjamin Lumberyard on the Avon River (West Hants Historical Society).**

The 1911 Census of Canada records 6 Mi'kmaq living in Windsor (Wicken, 2010, p. 1). An entry from 1913 by J.W. Stephens, Agent, Windsor Agency, reported that the 26 Mi'kmaq (no residence locations given) were engaged in "...basket-making, coopering, making axe handles, and one or two work on railroad" (House of Commons, 1914).



Holland, Map of that part of Nova Scotia contained between... Halifax & Pisiguit..., 1750

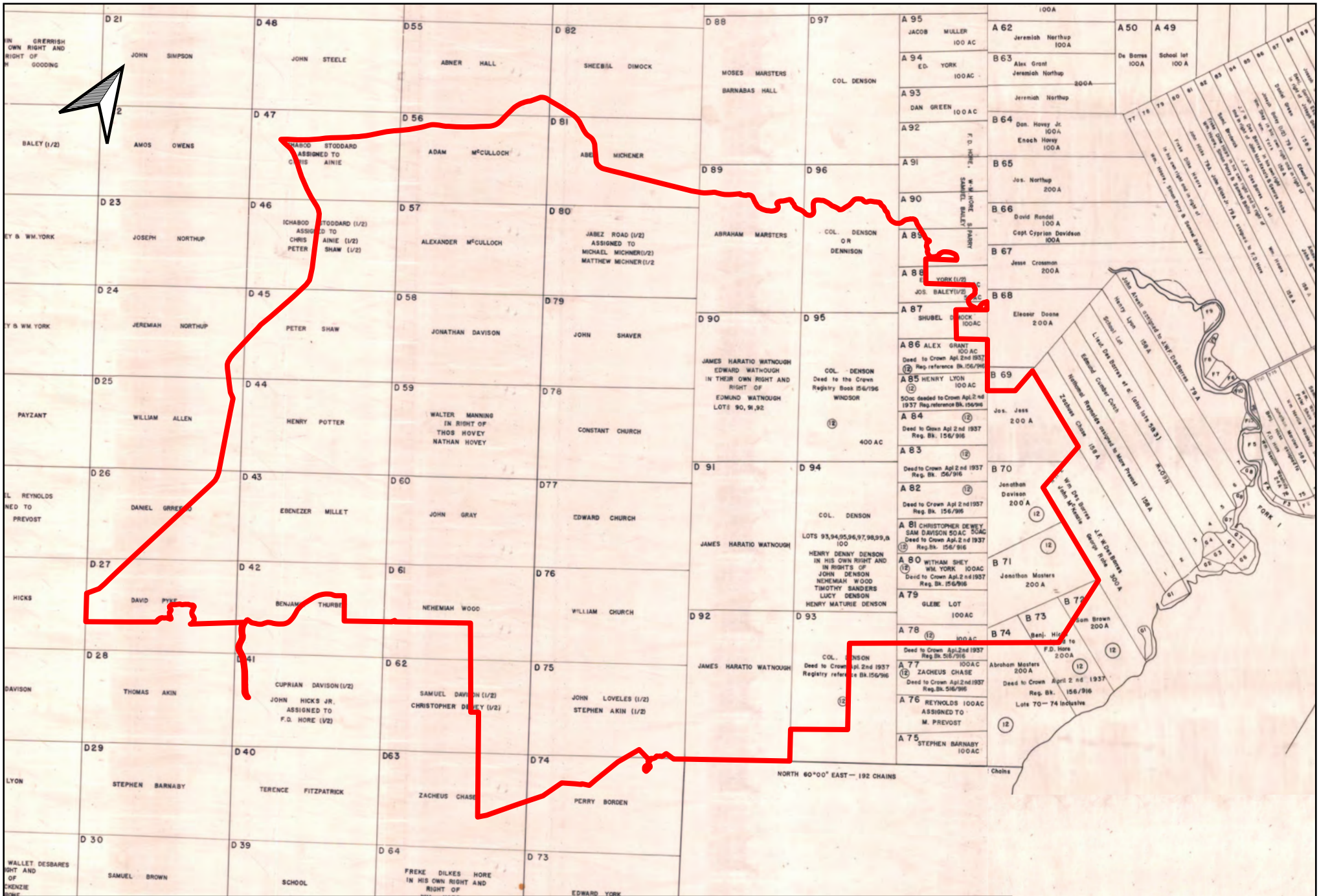
Figure 6

BENJAMINS MILL WIND PROJECT  
 ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT - SCREENING 2021  
 BENJAMINS MILL, NOVA SCOTIA

January 2022

Legend

Approximate Study Area




*A Plan of the Township of Falmouth, 1772*

*Figure 7*

BENJAMINS MILL WIND PROJECT  
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 BENJAMINS MILL, NOVA SCOTIA

January 2022

*Legend*

 Approximate Study Area





*DesBarres, Atlantic Neptune Series, 1773*


*Figure 8*

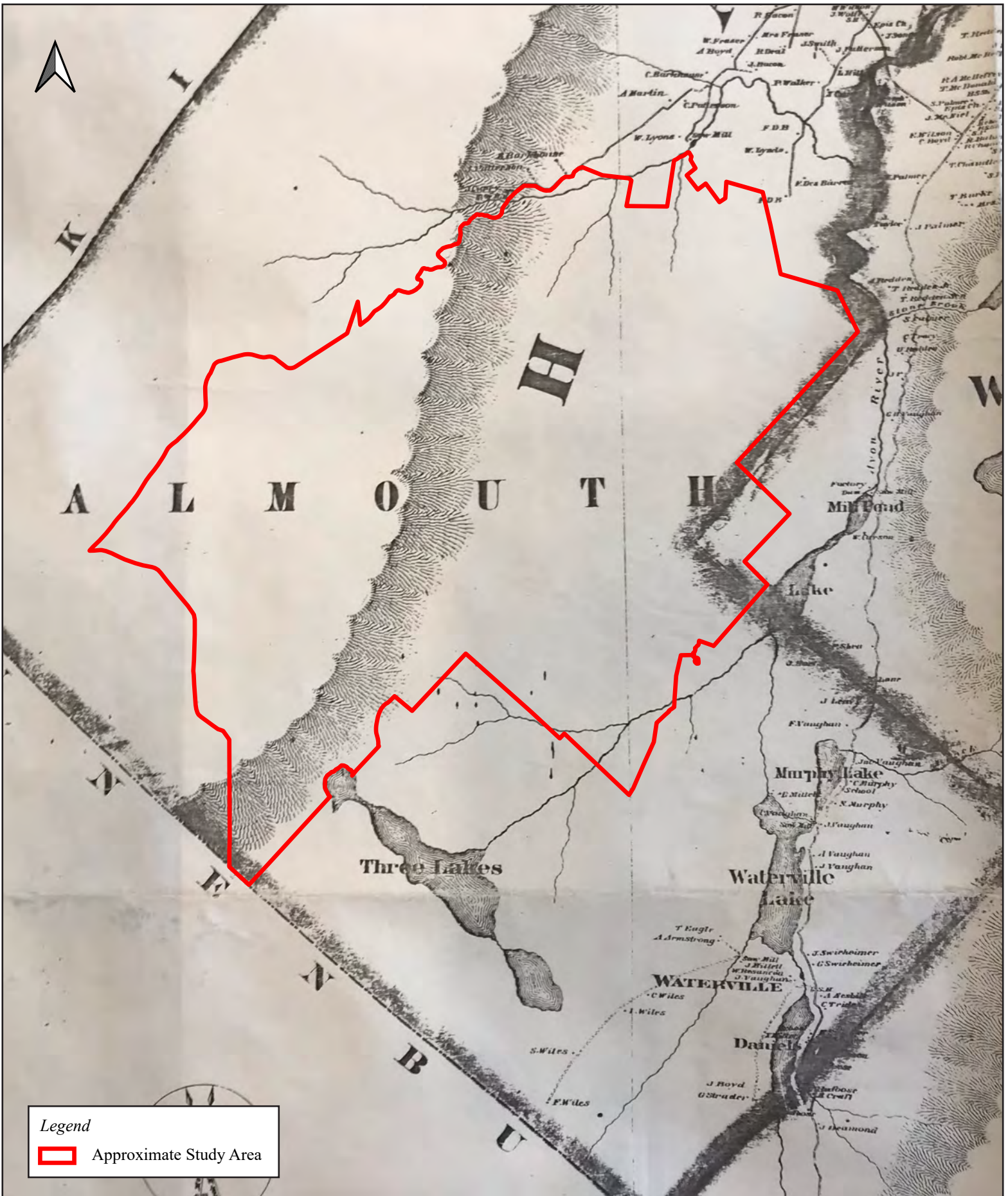



BENJAMINS MILL WIND PROJECT  
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BENJAMINS MILL, NOVA SCOTIA

January 2022

*Legend*

 Approximate Study Area



|  |   |                     |
|--|---|---------------------|
|  | <p>Church, Map of Hants Co., 1871</p>   | <p>Figure 9</p>     |
|  | <p>BENJAMINS MILL WIND PROJECT<br/>         ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT - SCREENING 2021<br/>         BENJAMINS MILL, NOVA SCOTIA</p> | <p>January 2022</p> |

#### **4.3 Previous Archaeological Assessments**

##### **Brian Preston, 1987: Heritage Research Permit A1987NS3 Summary Report (A1987NS3)**

In 1987, Brian Preston undertook research, reconnaissance, and monitoring of multiple archaeological sites in western, central, and northeastern Nova Scotia. Several sites received walking surveys that identified cultural features related to settlements from the early-eighteenth to the mid-twentieth centuries. House foundations and deep oval depressions were identified across the Ross Farm and Castle Frederick areas (Preston B. , 1987).

##### **Michael Deal, 1989: Western Minas Basin Project 1989: Preliminary Report (A1989NS7)**

In 1989, Michael Deal, of Memorial University, undertook a survey of Pre-contact and historic coastal resource exploitation and settlement patterning in the Minas Basin region. The survey resulted in the registration of several sites including BfDb-03, BfDb-04, BfDb-05, BfDb-09, and BfDb-10 (Deal, 1989).

Site BfDb-03, the S.W. Avon Site, which is located within the project study area, represents the isolated recovery of a ground slate point near a tributary of the Avon River during the installation of the transmission line extending through the study area. Site BfDb-04, the Castle Frederick Site, located near the Avon River, consists of a large cellar feature and two other smaller features, representing the remains of the estate of cartographer and politician J.F.W. DesBarres (1776-1833). Site BfDb-05, Acadian Feature 1 within the Castle Frederick Site complex, represents a pre-Deportation Acadian cellar and artifact collection. Site BfDb-09, the Devenney Farm 1 Site, is located across the river from the Castle Frederick property. The site consists of a few lithic flakes and one projectile point found during surface collection along the riverbank. The site is presumed to be largely destroyed when the area was used as a gravel and sand pit. Site BfDb-10, The Devenney Farm 2 Site, located in proximity to BfDb-09 and represents an historic midden containing nineteenth and twentieth century artifacts.

##### **Stephen Davis, 1989: Castle Frederick Cultural Resource Assessment (A1989NS16)**

Also, during the 1989 field season, Stephen Davis of Saint Mary's University, undertook an archaeological survey and reconnaissance of the Castle Frederick site that identified 30 cultural features that comprise sites BfDb-07 and BfDb-08. The subsequent testing produced artifacts linked to pre- and post-Deportation Acadian settlements. No recommendations were made regarding the site beyond the need for further exploration of its contents (Davis S. , 1989).

Site BfDb-07, consists of curvilinear depressions and a midden. The site was recorded as containing an oval depression approximately 4 metres in diameter which had been used as an historic dump.

Site BfDb-08, a rectangular structure and potential historic settlement feature, is located approximately 300 metres southwest of BfDb-07 and contains a dry-stone foundation with collapsed chimney at the north end containing artifacts dating to the late-eighteenth century.

##### **Jonathan Fowler, 1998-2000: The Minas Environs Project: An Archaeological Survey of Acadian Minas (A1999NS35)**

From 1998 to 2000, Jonathan Fowler undertook an extensive research survey of the Acadian *Les Mines* landscape. The goal was to discover the extent and distribution of pre-Deportation sites combining archival research, interviews, and later archaeological testing at high potential sites covering Kings and Hants Counties. The 1999 preliminary report lists the interviews and surface surveys along 14 sites within a broad study area that encompasses primarily Acadian features, but also some Pre-contact materials. A final 2000 report focused on important sites along the Gaspereau and Avon Rivers with a significant focus on The Church of Saint Charles in Grand Pré and the Church of Assumption in Pisiquid (Windsor) (Fowler, 1999; Fowler, 1999; Fowler, 2000).

### **Cultural Resource Management Group Ltd., 2011: Falls Lake Reservoir Avon River Hydro System Archaeological Reconnaissance 2011 (A2011NS83)**

In 2011, CRM Group undertook a survey of the Falls Lake and Mockingigh Lake Reservoir during a draw-down. The project's aim was to visit any previously recorded archaeological sites, identify any new sites, and collect and document any significant finds. Evidence of Archaic Period occupation was found in the Falls Lake Reservoir study area and the project resulted in the registration of Pre-contact sites BfDb-14, BfDb-15, BfDb-16, and BfDb-17, and historic site BfDb-19 (Beanlands, 2011).

Site BfDb-14, Falls Lake Site 3, located on a bedrock outcrop along the eastern bank of Falls Lake, consists of a scatter of quartz flakes exposed by the drawdown. Site BfDb-15, Falls Lake Site 4, located on a point of land facing north along the eastern side of Falls Lake, consists of an Otter-Creek-type point among several red ochre fragments. Site BfDb-16, Falls Lake Site 5, located on a prominent southward facing sandy point at the northwest end of Falls Lake, consists of two lithic points, a ground-stone adze, and a scatter of quartz, quartzite, and chert flakes. Site BfDb-17, Falls Lake Site 6, located on a prominent knoll along the western side of Falls Lake which becomes an island when the reservoir is full, consists of a scatter of quartz and chert flakes. Site BfDb-19, Falls Lake Historic Site 01, located on a prominent point at the northern end of Falls Lake, consists of an artifact scatter and structural remains related to an historic sawmill identified on twentieth century mapping.

### **David MacInnes, 2018: West Avon River Magnetic Susceptibility Survey 2017 Annual Report (A2017NS069)**

In 2017, David MacInnes undertook research and magnetic susceptibility surveys at the Titus Dam Stillwater, Big Bend, Methals, Mantletree Lake, and Dean Chapter Lake sites. No new archaeological sites were detected during the survey. Three of the sites (Methals, Mantletree Lake, and Dean Chapter Lake) could not be surveyed due to high water levels. However, the remaining two sites were surveyed and resulted in the identification of two potential archaeological resource locations in proximity to the Titus Dam Stillwater Site and a further two potential archaeological resource locations in proximity to the Big Bend Site. The purpose of the survey was to better understand settlement patterns and social organization within the Gaspereau and Avon River watersheds along upland portions of the watercourses (MacInnes, 2017).

Site BfDb-22, the Windsor Forks Site, located adjacent to Taylor Brook near 3579 Highway 14, Windsor Forks, consists of a single, isolated, well-worn rhyolite biface, similar to other Late Archaic Period artifacts. This find was recorded by curator of Archaeology Katie Cottreau-Robins and submitted directly to the Nova Scotia Museum, with no associated HRP.

## **4.4 Archaeological Potential Model**

Utilizing the preceding background study as well as the Primary Data identified in **Section 3.4**, an Archaeological Potential Model was produced for the Benjamins Mill study area (**Figure 10**). In the absence of standards for archaeological modeling in Nova Scotia, CRM Group applied regulatory standards from other jurisdictions.

### **4.4.1 Areas of Elevated Archaeological Potential**

As discussed in **Section 3.4**, areas of elevated archaeological potential within the study area are ascribed based on several cultural, environmental, and geomorphological factors. Furthermore, these areas have been subdivided into high, moderate, and low potential for encountering archaeological resources. Once a field truthing of the potential model has been undertaken, the distinction between the three levels of potential will have implications regarding recommendations for any warranted cultural resource management measures.

### **Proximity to Water**

Proximity to water and drainage order are, by far, the most important factors in determining archaeological site potential. Distance to water has been heavily relied on as a primary indicator for potential modelling, as it is assumed that sites are more likely to be found near a reliable source of potable water. One of the pioneering efforts in the Maritimes for potential modeling using distance to water was developed by the Archaeological Heritage Branch of the New Brunswick Department of Tourism, Heritage and Culture and utilizing data from over 300 sites (Suttie, Vincent, & Nicholas, 2007).

In producing the potential model for the Benjamins Mill study area, proximity to water was broken down into areas of high potential (0-50 metres from the edge of existing and extant watercourses) and areas of moderate potential (50-80 metres from the edge of existing and extant watercourses). This model has the potential to identify 95+% of the sites that could be expected to be present (Suttie, Vincent, & Nicholas, 2007, p. 10).

It should be noted that the use of the category “proximity to water” has become over-simplified and should not be considered as the sole factor in determining site potential. Other biophysical factors and the scale of a project need to be considered when implementing a potential model (Young, Horne, Varley, & Clish, 1995, p. 35).

### **Historic Documentation**

The archaeological potential modeling for Euro-Canadian and Post-contact Mi'kmaw sites was derived by reviewing historic documentation of European settlement in the landscape surrounding the study area. Unlike the environmental modeling necessary for determining Pre-contact Mi'kmaw land use, human habitation after approximately 1700 is partially documented and it is recognized that these historic sources provide more specific locational information than could be gained through geographic analysis. The maps and primary documents used in this study are discussed in **Section 4.2.3**. In order to identify areas of archaeological potential, known historic structures, settlement areas, and transportation routes were plotted as closely as possible over the study area. The greatest potential for encountering Euro-Canadian sites is found in proximity to these mapped features.

### **Mi'kmaw Traditional Knowledge**

Archaeological site potential models are based primarily upon environment and geomorphological data assumed to represent conditions existing in the past. When combined, the criteria chosen for the potential model had to represent a comprehensive view of the past that would allow the capture of all high and moderate potential areas representing all periods of Mi'kmaw occupation within the study area landscape. Since the needs of the Sa'qiwe'k L'nu'k (the Ancient People – 11,500 to 9,000 BP), the Mu Awsami Kejikawe'k L'nu'k (the Not So Recent People – 9,000 to 3,000 BP), the Kejikawe'k L'nu'k (the Recent People – 3,000 to 500 BP), and Kiskukewe'k L'nu'k (Today's People – 500 BP to present) would have been much different from those of later agriculturalists, the model needed a sufficiently broad scope to ensure that all culture groups and time frames were included.

Based on CRM Group's Request for Information discussed in **Section 4.1**, information regarding Mi'kmaw traditional knowledge of the study area was used to expand upon information gained through archival research to better understand the cultural and archaeological importance of this study area, as well as support CRM Group in conducting the assessment with an approach that included the landscape changes witnessed and experienced by Mi'kmaw ancestors since time immemorial. This knowledge was used to inform both CRM Group's background study methodology, as well as the potential modeling and recommendations.

### **Proximity to Known Registered Archaeological Sites**

The locations of registered archaeological sites was garnered from the MARI, maintained by CCTH.

Based on **Section 2.3.1.1** of the New Brunswick Archaeological Guidelines and Procedures, the landscape surrounding known registered archaeological sites is ascribed high archaeological potential. The area of high archaeological potential extends 200 metres from known Pre-contact archaeological sites and 100 metres from known historic archaeological sites (Archaeological Heritage Branch, 2012, p. 22).

#### **4.4.2 Areas of Low Archaeological Potential**

Although it is difficult to determine areas of low archaeological potential prior to the field component of an archaeological assessment, several criteria can reduce the potential of a given area, such as steep slope, wetland conditions, and knowledge of areas where modern ground disturbance has stripped away any archaeological-resource-bearing strata.

##### **Slope**

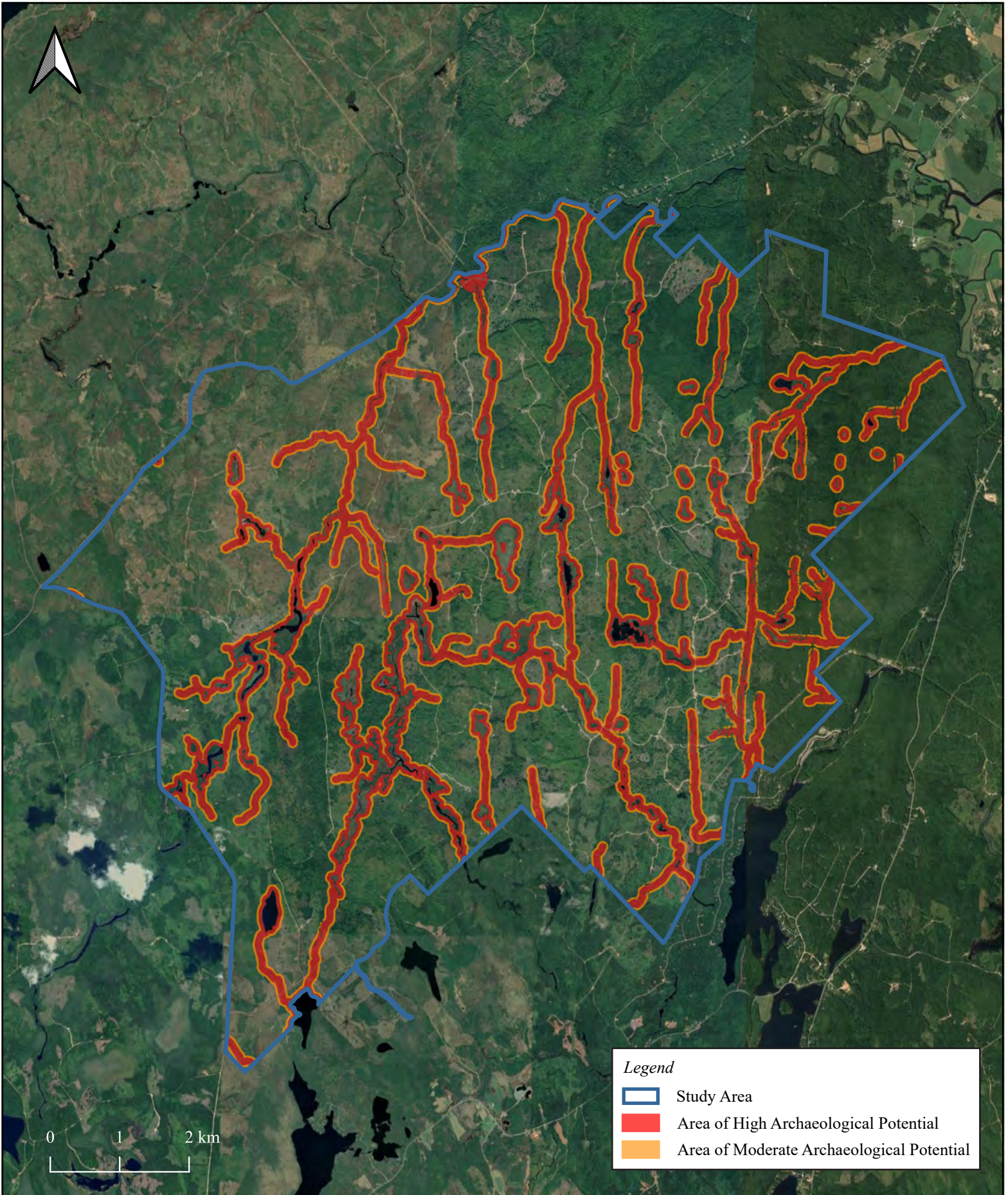
Based on **Standard 2.a.iii.** in **Section 2.1** of Ontario Standards and Guidelines for Consultant Archaeologists, areas identified as having steep slopes (greater than 20 degrees) have low potential for encountering archaeological resources (Ministry of Tourism and Culture, 2011, p. 28).

Although it is unlikely that evidence of human occupation would be visible within areas of steep slope, it is possible that archaeological potential remains. Given the general topography of Nova Scotia, and instances of glacial erratics and exposed bedrock, where areas of high potential meet areas with exposed bedrock, there may be potential for encountering petroglyphs.

##### **Modern Ground Impacts**

For the purposes of this study, integrity relates to the extent that modern groundwork has modified or disturbed the physical landscape and consequently, impacted archaeological resource potential. Land that has been fully disturbed down to glacial till or bedrock retains little or no archaeological integrity, whereas unmodified maintains any existing archaeological potential/integrity.

Road infrastructure within the study area was obtained from the Nova Scotia Topographic Database, contemporary satellite images, LiDAR DEM, historic aerial photos, and historic maps and was applied to the potential model.



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2021 Archaeological Screening phase of the ARIA of the Benjamins Mill Wind Project study area consisted of Mi'kmaw engagement and a background study.

As evidenced by the background study and engagement, the study area and vicinity has been utilized and occupied by the Mi'kmaq from at least from the Archaic Period to the historic period (10,000 BP to present). Therefore, as part of the archaeological potential model, portions of the study area are ascribed elevated potential for encountering Pre-contact and historic period Mi'kmaw archaeological resources. Land within the study area situated within 50 metres from the shore or bank of a body of water or watercourse is ascribed high archaeological potential. Land from 50 to 80 metres from the shore or bank of a body of water or watercourse is ascribed moderate potential. Likewise, land within 200 metres of a registered Pre-contact archaeological site is ascribed high archaeological potential.

As evidenced by the background study, the study area and vicinity has been utilized and occupied by European settlers from at least the second half of the seventeenth century. However, aside from possible sawmill activity along the northern boundary of the study area in the late nineteenth to early twentieth centuries and the creation of modern logging roads, no historic period settlement or development of the study area has occurred. Therefore, as part of the archaeological potential model, the study area is ascribed low potential for encountering early Euro-Canadian archaeological resources.

It should be noted that the preceding ascriptions are preliminary. Final ascription of archaeological potential will be made during the ground-truthing phase (Archaeological Reconnaissance) of the ARIA.

Based on these results, CRM Group offers the following recommendations for future archaeological resource management for the study area:

1. It is recommended that the areas of high and moderate archaeological potential, as depicted on the archaeological potential model of the study area (*Figure 10*), as much as is possible or practical, be avoided when designing the proposed Benjamins Mill Wind Energy Project.
2. It is recommended that any proposed impact areas within the Benjamins Mill Wind Energy project study area be subjected to the Archaeological Reconnaissance phase of the ARIA prior to any ground disturbance activity.

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## **7.0 APPENDICES**

**Appendix A: Heritage Research Permit Documents**



# Heritage Research Permit (Archaeology)

Special Places Protection Act 1989

(Original becomes Permit when approved by  
Communities, Culture and Heritage)

**Office Use Only**  
Permit Number:

A2021NS150

Greyed out fields will be made publically available. Please choose your project name accordingly

Surname **Shears** | First Name **Robert**

Project Name **Benjamins Mill Wind Farm Archaeological Resource Impact Assessment - Archaeological Screening 2021**

Name of Organization **Cultural Resource Management Group Ltd**

Representing (if applicable) **Dillon Consulting Limited**

Permit Start Date **November 10, 2021** | Permit End Date **December 31, 2021**

General Location: **Benjamins Mill, West Hants, Nova Scotia**

Specific Location: *(cite Borden numbers and UTM designations where appropriate 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)*

The proposed wind farm project is located at Benjamins Mill in West Hants. The study area is bounded in the west by the intersection of Hingley and Mines roads (UTM 20T 391397.79m E 4971665.83m N), in the north by Mines Road and the West Branch Avon River, in the east by a property boundary located approximately 115 metres west of the Avon River (UTM 20T 404519.98m E 4974331.28m N), and in the south by a point approximately 260 metres east of Hingley Road and 750 metres west of North Canoe Lake (UTM 20T 394259.32m E 4964581.32m N).

Permit Category:  
Please choose one

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

I certify that I am familiar with the provisions of the *Special Places Protection Act* of Nova Scotia and that I have read, understand and will abide by the terms and conditions listed in the Heritage Research Permit Guidelines for the above noted category.

Signature of applicant

Date **October 27, 2021**

Approved by Executive Director

Digitally signed by Christopher Shore  
Date: 2021.11.15 15:27:57 -04'00'

Date **November 15, 2021**

**Appendix B: Potential Model Shapefile Metadata**

| layer_name                                 | crs                                  | provider       | abstract   |
|--|--------------------------------------|----------------|--|
| Areas of High Archaeological Potential     | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Areas of High Archaeological Potential (0-50 metres) shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).      |
| Areas of Moderate Archaeological Potential | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Areas of Moderate Archaeological Potential (50-80 metres) shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150). |
| Roads                                      | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Roads shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).   |
| Slope Greater than 20 Percent              | ESRI:103697                          | CRM Group Ltd. | Areas with Slope Greater than 20 Percent shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).                  |
| Study Area                                 | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Study Area shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).  |
| Waterbodies                                | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Waterbodies shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).   |
| Watercourses                               | EPSG:2961 NAD83(CSRS) / UTM Zone 20N | CRM Group Ltd. | Watercourses shapefile for Cultural Resource Management Group Limited's (CRM Group Ltd) Screening Phase of the Archaeological Resource Impact Assessment (ARIA) of Benjamins Mill (A2021NS150).  |