

# **APPENDIX F**

## MI'KMAQ ECOLOGICAL KNOWLEDGE STUDY (MEKS)

# Highway 102 – Aerotech Connector MEKS



**July 2019**  
**Version: 1**

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## Executive Summary

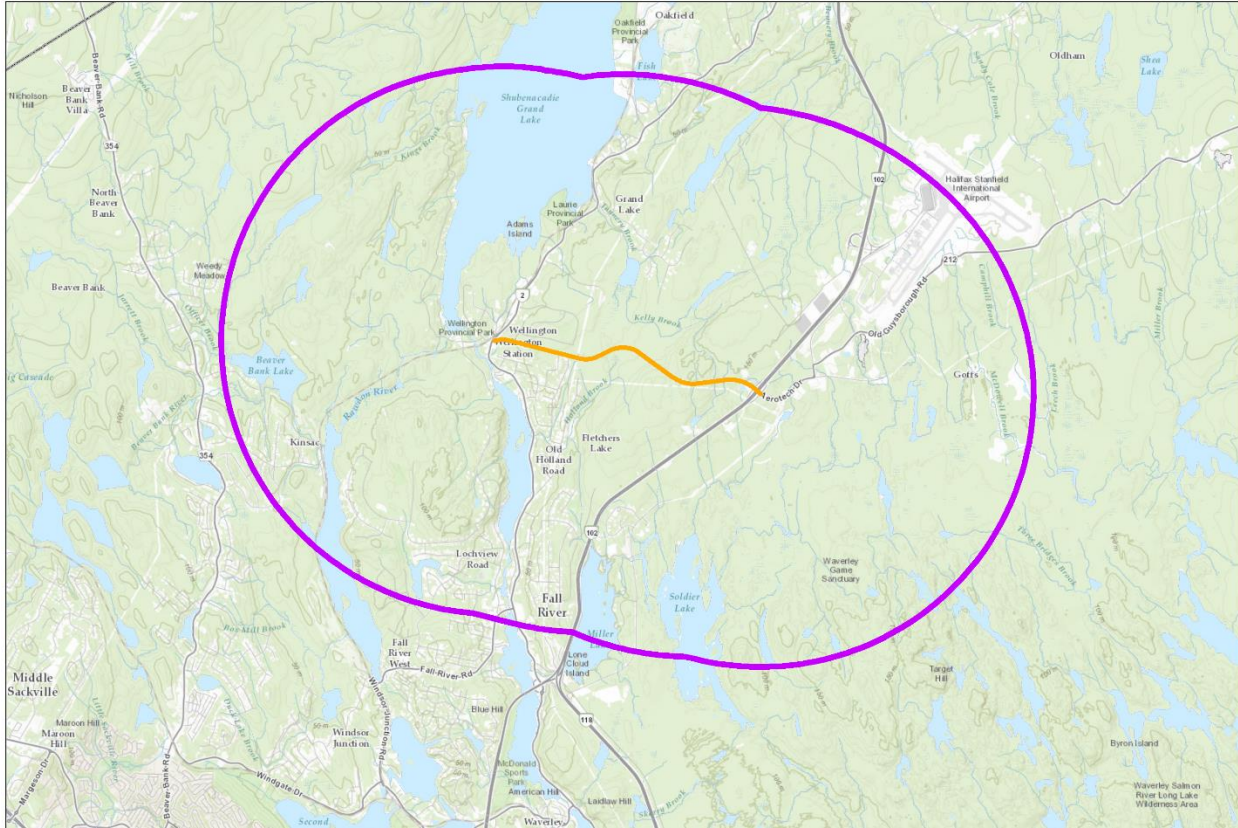
This Mi'kmaq Ecological Knowledge Study, also commonly referred to as a MEKS or a Traditional Ecological Knowledge Study (TEKS), was developed by Membertou Geomatics Solutions (MGS) for Nova Scotia Transportation and Infrastructure Renewal (NSTIR) with regards to the proposed Highway 102 Aerotech Connector

This MEKS mandate is to consider land and water areas in which the proposed project is located and to identify what Mi'kmaq traditional use activities have occurred, or are currently occurring within, and what Mi'kmaq ecological knowledge presently exists in regards to the area. In order to ensure accountability and ethic responsibility of this MEKS, the MEKS development has adhered to the "Mi'kmaq Ecological Knowledge Protocol, 2nd Edition". This protocol is a document that has been established by the Assembly of Nova Scotia Mi'kmaq Chiefs, which speaks to the process, procedures and results that are expected of a MEKS.

The Mi'kmaq Ecological Knowledge Study consisted of two major components:

- **Mi'kmaq Traditional Land and Resource Use Activities**, both past and present,
- **A Mi'kmaq Significance Species Analysis**, considering the resources that are important to Mi'kmaq use.

The Mi'kmaq Traditional Land and Resource Use Activities component utilized interviews as the key source of information regarding Mi'kmaq use within the Project Site and Study Area. The Project Site includes a proposed connector road from Exit 5A near the Halifax International Airport to Trunk 2 Wellington Station, Nova Scotia.



*Project Site (orange areas) and Study Area (purple outline) are identified by the Project Team.*

The Study Area will consist of an area within a 5 km radius around the Project Site.

Interviews were undertaken by the MEKS Team with Mi'kmaq knowledge holders from the communities of Sipekne'katik, Millbrook, and Pictou Landing. The interviews took place between February 2019 and June 2019.

Informants were shown topographical maps of the Project Site and Study Area and asked to identify where they undertake their activities as well as to identify where and what activities were undertaken by other Mi'kmaq, if known. Twenty one (21) individuals were asked to provide information in regards to past and present traditional use activities. Permission was requested of the informant(s) to have their information incorporated into the GIS data. These interviews allowed the team to develop a collection of data that reflected the most recent Mi'kmaq traditional use in this area, as well as historic accounts.

**All informant's names are kept confidential and will not be released by MGS as part of a consent agreement between MGS and the informant to ensure confidentiality.**

The data gathered was also considered in regards to its significance to the Mi'kmaq people. Each species identified was analyzed by considering their use as food/sustenance resources, medicinal/ceremonial plant resources and art/tools resources. These resources were also considered for their availability or abundance in the areas listed above, and their availability in areas adjacent or in other areas outside of these areas, their use, and their importance, with regards to the Mi'kmaq.

### **Historic Review Summary**

Overland travel routes established by early peoples made the best use of the topography between coasts and were logical paths of least resistance between departure locations and destinations. The Chain of interconnected lakes and river systems of the Shubenacadie River System was an important travel route crossing the central portion of province mainland roughly in a southwest to northeast direction.

These early trail routes eventually became roads during the historic British settlement in Nova Scotia. The trail to Pisaquid (Windsor) eventually became Trunk 1 and the Shubenacadie system of lakes, rivers and valleys eventually became Trunk 2 to Cobequid (Truro). It is unknown if the Old Guysborough Road was originally a traditional travel route for early peoples to the Musquodoboit Valley.

There are several known pre-contact archaeological sites/finds within the Study Area with the nearest 500m west of the new alignment intersection with Trunk 2 at Wellington Station. The archaeological period of the sites was determined to be Archaic, Early-Middle Archaic to Ceramic Period. The artifact stone materials found are available within the Study Area and Project Site providing the bedrock is exposed for discovery and extraction by early peoples.

Other features found within the Study Area include a “15 ft. Fall” and “Gorge” watercourse emptying into Soldier Lake on the northeastern shore. The Quartzite Barrens landscape and wetlands also provide support for a variety of plants (Blueberries) and wildlife important to early peoples

The Project Site and Study Area are within the Traditional Mi’kmaq Territory of Eskikewa’kik. Eskikewa’kik includes all lands and waters draining into the Atlantic from St. Margarets Bay including Big Indian Lake, Chebucto (Halifax), Eastern Shore, Strait of Canso to Cape Blue on St. Georges Bay. The District includes the entire Musquodoboit River watershed, a portion of the Shubenacadie River to and including the Stewiacke River watershed draining into Cobequid Bay. In addition, Eskikewa’kik includes the West St. Marys River watershed, East St. Marys River watershed, Country Harbour River watershed as well as the Salmon River and Milford Haven River watersheds draining into Chedabucto Bay.

There are no last known Traditional Hunting Territories near the Project Site. The closest territories are east and inland of the Eastern Shore at Musquodoboit Harbour and others west of the Project Site inland from St. Margarets Bay and Mahone Bay.

During the mid to late 1700’s, there were hostilities between the Mi’kmaq and British. The Shubenacadie lakes and river systems provided Mi’kmaq access to attacks on the new settlement at Halifax Harbour as well as an inland refuge from British patrols and counter attacks. The constant threat of attacks by the Mi’kmaq kept the British confined to the Halifax Harbour area and large portions of the Province remained unknown to the British at that time.

As Trunk 2 eventually became the preferred route between Halifax and Truro, the section of Old Guysborough Road from Lake Thomas to Goffs fell out of favor with travelers as did the Cobequid Road from Fletchers Lake to Oldham Road. The Construction of Highways 102 and 118 destroyed Lake Thomas and Miller Lake Sections of the Guysborough Road and cut off access to the Miller Lake to Goffs sections of the original road until construction of Perrin Drive and Exit 5A on Highway 102.

The nearest Indian Reserve (I.R.) parcel is Shubenacadie I. R. 13, located on the northwestern shore of Shubenacadie Grand Lake, approximately 8 km north-northwest of the Project Site. Shubenacadie I.R. 13 is the land of the Sipekne'katik First Nation community located at Indian Brook I.R. 14, 26.5 km north-northeast of the Project Site.

A review of current status of any claims filed with Crown-Indigenous Relations and Northern Affairs Canada shows no current claims within the Project Site and Study Area.

### **Traditional Use - Project Site Summary**

Based on the data documented and analyzed, it was concluded that there is no Mi'kmaq use reported on the Project Site, or in the immediate vicinity.

### **Traditional Use - Study Area Summary**

Bass and trout fishing were the most commonly reported activity by informants within the Study Area. Overall, the majority of activities took place in what this report categorizes as the Current Use timeline. There are enough current use activities occurring in the area to suggest concurrent use throughout all three timelines.

### **Other Information**

A few informants had described utilizing the Shubenacadie Grand Lake for activities such as canoeing, swimming, fishing and gathering medicines. This water system is an important part to the Mi'kmaq in this area as there are many historical activities tied to it.



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## **1.0 INTRODUCTION**

### ***1.1 Membertou Geomatics Solutions***

Membertou Geomatics Solutions (MGS) is a Membertou First Nation company that was developed as a result of the 2002 Supreme Court Marshall Decision. MGS was established as a commercially viable company that could provide expertise in the field of GIS Services, Database Development, Land Use Planning Services and Mi'kmaq Ecological Knowledge Studies (MEKS). MGS is one of many companies established by the Membertou First Nation – Membertou Corporate Division and these companies provide employment opportunities for aboriginal persons and contribute to Membertou's efforts of growth and development. As well, Membertou's excellent management and accountability of their operations is further enhanced by their ISO 9001:2015 certification.

For the development of this MEKS, MGS brings to the table a team whose expertise and skills with land documentation have developed a sound MEKS. The team skills include knowledge of historical Mi'kmaq research, GIS data analysis, Mi'kmaq ecological and cultural knowledge, and Mi'kmaq community connections.

### ***1.2 Aerotech Connector***

The Highway 102 Aerotech Connector Project is the development of a proposed connector route from Highway 102 at Exit 5A (Aerotech Business Park) to Trunk 2, south of Wellington Station.

## **2.0 MI'KMAQ ECOLOGICAL KNOWLEDGE STUDY SCOPE & OBJECTIVES**

### ***2.1 Mi'kmaq Ecological Knowledge***

The Mi'kmaq people have a long-existing, unique and special relationship with the land and its resources, which involves the harvesting of resources, the conservation of resources and spiritual ideologies. This relationship is intimate in its overall character, as it has involved collective and individual harvesting of the resources for various purposes, be it sustenance, medicinal, ceremonial and/or conservation. This relationship has allowed the Mi'kmaq to accumulate generations of ecological information and this knowledge is maintained by the Mi'kmaq people and has been passed on from generation to generation, youth to elder, *kisaku kinutemuatel mijuijij*.

The assortment of Mi'kmaq Ecological Information, which is held by various Mi'kmaq individuals, is the focus of MEKS, also commonly referred to as Traditional Ecological Knowledge Studies (TEKS). When conducting a MEKS, ecological information regarding Mi'kmaq/Aboriginal use of specific lands, waters, and their resources are identified and documented by the project team.

Characteristically, MEKS have some similar components to that of an Environmental Assessment; yet differ in many ways as well. Among its purpose, Environmental Assessments measure the impact of developmental activity on the environment and its resources. This is often done by prioritizing significant effects of project activities in accordance with resource legislation, such as the Federal *Species at Risk Act* and the Nova Scotia *Endangered Species Act*.

Mi'kmaq Ecological Knowledge Studies are also concerned with the impacts of developmental activities on the land and its resources, but MEKS do so in context of the land and resource practices and knowledge of the Mi'kmaq people. This is extremely important to be identified when developing an environmental presentation of the Study

Area as Mi'kmaq use of the land, waters and their resources differs from that of non-Mi'kmaq. Thus, the MEKS provides ecological data which is significant to Mi'kmaq society and adds to the ecological understandings of the Project Site and Study Area.

## ***2.2 Mi'kmaq Ecological Knowledge Study Mandate***

Membertou Geomatics Solutions was contacted by the Nova Scotia Department of Transportation and Infrastructure Renewal to undertake a MEKS for the Project Site and larger assessment area. This project will require the documentation of key environmental information in regards to the project activities and its possible impacts on the water, land and the resources located here. The MEKS must be prepared as per the **Mi'kmaq Ecological Knowledge Study Protocol** ratified by the Assembly of Nova Scotia Mi'kmaq Chiefs on November 22, 2007, and the 2<sup>nd</sup> Edition released in 2014.

MGS proposed to assist with the gathering of necessary data by developing a MEKS which will identify Mi'kmaq traditional land use activity within the Project Site and in the surrounding areas. This MEKS had gathered, identified, and documented the collective body of ecological knowledge which is held by individual Mi'kmaq people. The information gathered by the MEKS team is documented within this report and presents a thorough and accurate understanding of the Mi'kmaq's use of the land and resources within the Project Site/Study Area.

***It must be stated, however, that this MEKS preparation and/or acceptance of this report is not considered Consultation within itself, nor is it deemed to fulfill the Duty to Consult owed by the Crown to the Mi'kmaq. This report does not replace any Consultation process that may be required or established in regards to Aboriginal people. As well, this report cannot be used for the justification of the Infringement of S.35 Aboriginal Rights that may arise from the project.***

### ***2.3 Mi'kmaq Ecological Knowledge Study Scope & Objective***

This MEKS will identify Mi'kmaq ecological information regarding Mi'kmaq traditional land, water and resource use within the Project Site/Study Area. The data that the study will gather and document will include traditional use from both the past and present time frames. The final MEKS report will also provide information that will identify where the proposed project activities may impact the traditional land and resource of the Mi'kmaq. If such possible impact occurrences are identified by the MEKS then the study will also provide recommendations that should be undertaken by the proponent. As well, if the MEKS identifies any possible infringements with respect to Mi'kmaq constitutional rights, the MEKS will provide recommendations on necessary steps to initiate formal consultation with the Mi'kmaq.

### ***2.4 MEKS Project Site and Study Area***

This MEKS will focus on the proposed Project Site. This site is defined as the proposed connector road. The site is located between Highway 102 Exit 5A, near the Halifax International Airport, to Wellington Station, Nova Scotia.

The Study Area will consist of a larger area that falls within a 5km radius around the Project Site.

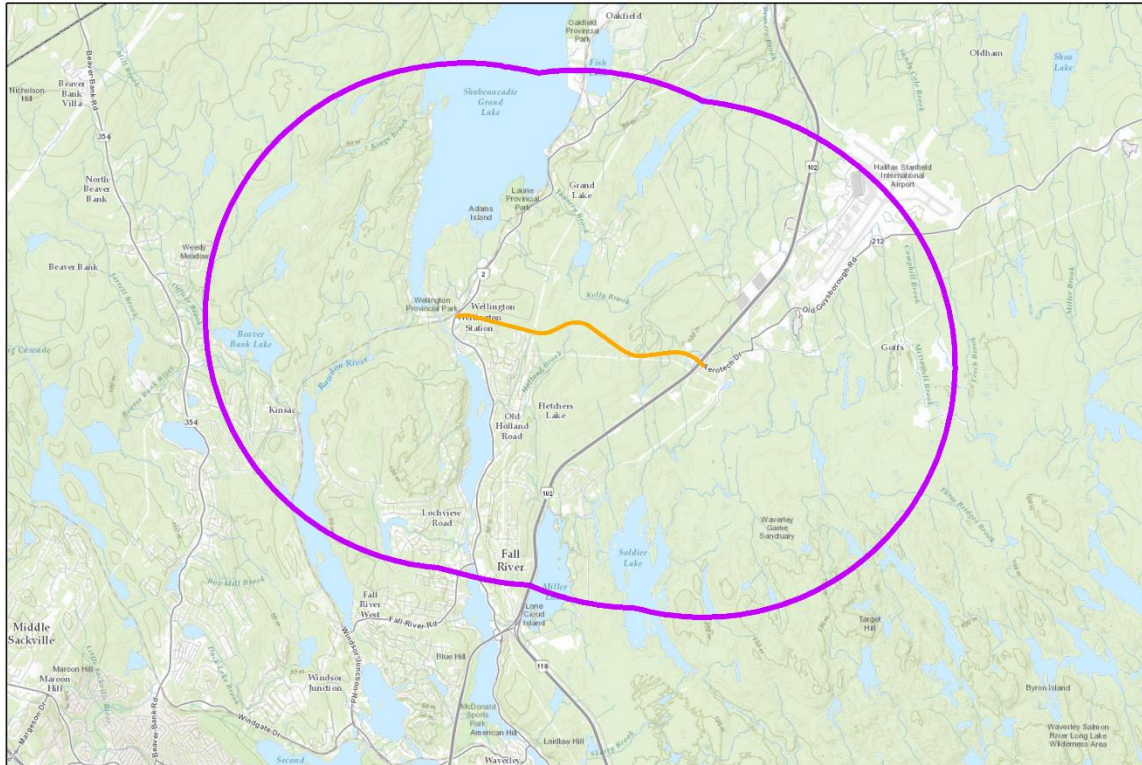


Figure 1. Project Site (orange areas) and Study Area (purple outline) are identified by the Project Team.

## 3.0 METHODOLOGY

### 3.1 Interviews

As a first step to gathering traditional use data, the MEKS team had initiated dialogue with Sipekne’katik, and Millbrook First Nations given their close proximity with the Project Site. Pictou Landing was included later on.

Discussions occurred with the MEKS staff to identify individuals who undertake traditional land use activities or those who are knowledgeable of the land and resources. Knowledge holders were contacted by the MEKS team members and interviews were conducted between February and June, 2019.

For this MEKS, twenty-one (21) individuals were asked to provide information in regards to past and present traditional use activities. The informants were from the communities of Sipekne'katik, Millbrook, and Pictou Landing. All of the interviews that were completed following the procedures identified within the Mi'kmaq Ecological Knowledge Protocol (MEKP) document. Prior to each interview, informants were provided information about the MEKS, including the purpose and use of the MEKS, an agreement of non-disclosure of their personal information in any reports, and the future use of the traditional use information they provided. Information gathered from other studies conducted in the area were utilized in this study as well.

Informants were asked to sign a consent form, providing permission for MGS to utilize their interview information within this MEKS. During each interview, individuals were provided a map of the Project Site/Study Area and asked various questions regarding Mi'kmaq use activities, including where they undertook their activities or where they knew of activities by others, when such activities were undertaken, and how that type of resource was utilized. Other information gathered could be species habitats, changes in species populations, and/or general information about the land related to its' use. When required or preferred, interviews were conducted in the Mi'kmaq language.

### ***3.2 Literature and Archival Research***

With regards to this MEKS, various archival documents, maps, oral histories and published works were reviewed in order to obtain accurate information regarding the past or present Mi'kmaq use or occupation relevant to the Project Site and Study Area.

As part of the historical review process, it should be noted there may be other sources of Historical and Archaeological data available but may have restricted access or not uncovered within this project's Historical Review. A complete listing of the documents that were referenced is outlined within the *Sources* section.

### **3.3 *Field Sampling***

#### **Methodology**

Field sampling, or site visits, are conducted as another method to gather and document plants, trees, animal signs/tracks, fish and wildlife habitats, or any other land feature which would hold significance to the Mi'kmaq (food or sustenance, social, cultural, or ceremonial purposes).

Site visits consist of site reconnaissance (to evaluate the entrances to the site, terrain characteristics, and evaluation of any other information that would affect safety or logistics of the site visit), logistics planning, as well as capturing “observation points” with the assistance of a Mi'kmaq knowledge holder. Observation points are stops along the site visit where species or landmarks significant to the Mi'kmaq were observed to be occurring. These are taken at approximate set intervals, or whenever a species or feature was deemed worthy to be noted by the knowledge holder. While every effort is made to ensure the Project Site receives a good coverage of observation points, weather, vegetation, available paths and trails, or difficult terrain can cause some data gaps.

Initial site visits took place in November 2018. Over two separate days in June and July 2019, MGS staff, accompanied by a Mi'kmaq knowledge holder from Paq'tnekek conducted a site visit of the Project Site. Throughout the site visit various species (and subspecies) of plants, trees, and animal signs/tracks were observed.



## Site Visit Observations

Spruce species, maple, birch species, and fir trees were observed the most throughout the entire site.

Observation	# of observations
spruce	8
black spruce	6
maple	6
alder	4
beech	4
white birch	4
blueberry	4
fir	4
pitcher plant	4
poplar	4
deer signs	3
fern	3
juniper	3
Labrador tea	3
bunch berry	2

Observation	# of observations
golden thread	2
pine	2
ash	1
aspen	1
coyote sign	1
fiddlehead	1
hemlock	1
lady slipper	1
lion paw	1
osprey nest	1
sarsaparilla	1
strawberry	1
stripe maple	1
wire birch	1
yellow birch	1

Table 1. Summary of observation points

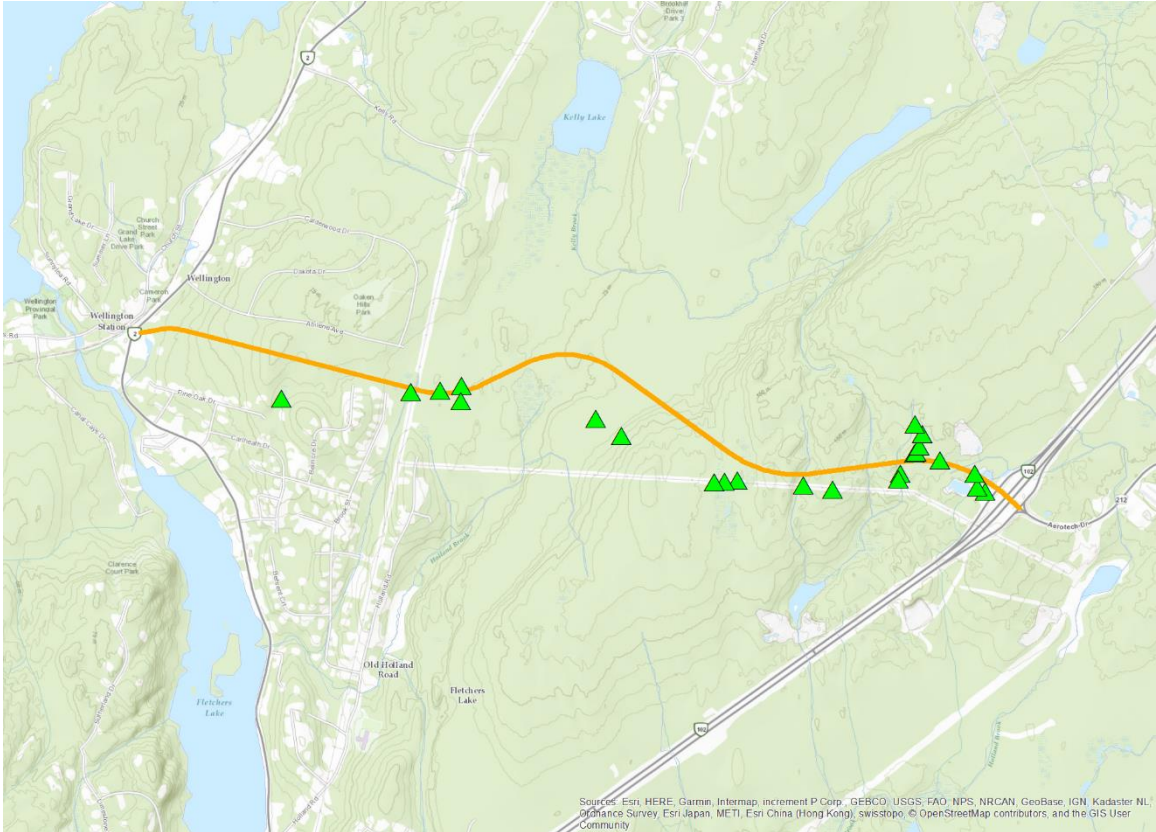


Figure 2. Observation points (green triangles) taken throughout the site visit

## 4.0 MI’KMAQ LAND, WATER AND RESOURCE USE

### 4.1 Overview

The Mi’kmaq Land, Water and Resource Use Activities component of the MEKS provides relevant data and analysis in regards to Mi’kmaq traditional use activities that are occurring or have occurred within the Study Area. It identifies what type of traditional use activities are occurring, it provides the general areas where activities are taking place and it presents an analysis regarding the significance of the resource and the activity as well.

The Mi’kmaq traditional use activities information that is provided by informants is considered both in terms of “Time Periods” and in regards to the “Type of Use” that the

resource is being utilized. The Time Periods that the MEKS team differentiates traditional use activities by are as follows:

**“Current Use” – a time period within the last 10 years**

**“Recent Past” – a time period from the last 11 – 25 years ago**

**“Historic Past” – a time period previous to 25 years past**

The “Type of Use” categories include spiritual use, and sustenance use, such as fishing, hunting or medicinal gathering activities.

Finally, the study analyzes the traditional use data in consideration of the type of land and resource use activities and the resource that is being accessed. This is the Mi’kmaq Significant Species Analysis, an analysis which ascertains whether a species may be extremely significant to Mi’kmaq use alone and if a loss of the resource was to occur through project activities, would the loss be unrecoverable and prevent Mi’kmaq use in the future. This component is significant to the study as it provides details as to Mi’kmaq use activities that must be considered within the environmental understanding of the Project Site and Study Area.

By analyzing the traditional use data with these variables, the MEKS thoroughly documents Mi’kmaq traditional use of the land and resources in a manner that allows a detailed understanding of potential effects of project activities on Mi’kmaq traditional use activities and resources.

## **4.2 *Limitations***

By undertaking a desktop background review and interviews with Mi’kmaq participants in traditional activities, this study has identified Mi’kmaq Traditional Use activities that have occurred or continue to occur in the Study Area and Project Site. This has allowed the study to identify traditional use activities in a manner that the MEKS team believes is complete and thorough, as required by the MEKP. Historical documents within public institutions were accessed and reviewed and individuals from nearby Mi’kmaq

communities were interviewed. The interviews were undertaken with key Mi'kmaq community people, identified by the MEKS team, who are involved and are knowledgeable regarding traditional use activities. Through the historical documentation review and the interview process, the MEKS team is confident that this MEKS has identified an accurate and sufficient amount of data to properly reflect the traditional use activities that are occurring in the Study Area.

The MEKS process is highly dependent on the information that is provided to the team. Because only some of the Mi'kmaq traditional activity users and not all Mi'kmaq traditional activity users are interviewed, there is always the possibility that some traditional use activities may not have been identified by this MEKS.

### ***4.3 Historical Review Findings***

#### **Historic Review**

The Project Site is a road alignment between Exit 5A on the twined Highway 102 and 4.8km southwest at Wellington Station on Trunk 2. The Project Study Area is a 5 km buffer on each side and ends of the road alignment. The Project Site (road alignment) is a northwest extension of Aerotech Drive at Exit 5A with a large radius curve to the southwest (left turn) before a straight run approximate distance of 540m before another large curve radius to the west (right turn). This section from Exit 5A skirts south of two high points of 150m and 155m elevation and crosses three watercourses flowing south towards Soldier Lake. The high points are two of four that form a southwest to northeast ridge roughly 4.0km x 0.8km wide ridge that the new road alignment crosses at 140m to 145m elevation. The new road alignment continues on an approximate 800m straight northwest run down the steep northwest slope of the ridge. This straight northwest run of the alignment drops in elevation from 135m at the top of the slope to 85m elevation at the bottom of the slope over a distance of 600m. (1)

From the bottom of the slope, the new road alignment makes a southwest (left) turn from 85m elevation and has a short 400m straight southwest run until a small radius northwest (right) turn towards Trunk 2. The elevation change from the bottom of the slope to the intersection with Holland Road is -20m from 85m to 65m elevation. Approximately 170m west of the intersection with Holland Road, the new road alignment crosses a wetland/watercourse flowing south towards Fetcher's Lake. The road alignment continues for a straight northwest run between Abeline Avenue and Pine Oak Drive of approximately 1700m between Holland Road to Trunk 2. The new road alignment intersects with Trunk 2 at Wellington Station at roughly 30m elevation. The intersection with Trunk 2 is opposite where Church Street/Sunnylea Road, the railroad and Trunk 2 converge through a narrow transportation corridor. (1)

The Study Area encompasses an area of 5km radius at Exit 5A and at Wellington Station as well as 5km offset from each side of the total of the new road alignment. The coverage encompasses the southeast shoreline of Shubenacadie Grand Lake including Laurie Provincial Park and north to Fish Lake, Oakfield. The Study area includes Sleepy Cove on the western shore of Shubenacadie Grand and west to include Beaver Bank Lake and the northern portion of Kinsac Lake. The southern portion of the Study Area includes all of Fletchers Lake, river run to Lake Thomas and the northern portion of Lake Thomas, all of Miller Lake and Soldier Lake. The eastern portion of the Study Area includes a portion of the Waverly Game Sanctuary, all of Granite Lake, King Lake, as well as the Areotech Business Park and a portion Stanfield International Airport Lands and runway. The northeastern portion of the StudyArea includes Kelly Lake, Kelly Long Lake and most of Bennery Lake. Highway 102 runs through the Study Area southwest from where Highway 118 meets Highway 102 at Fall River to approximately 1.8km northeast of Exit 6. (1)



Figure 3. Project Site Looking South

## Landscape Development

The Project Site and Study Area were ice free along the Shubenacadie River and valley at approximately 12,000 years B.P. while surrounded by a large ice sheet that covered most of the northern portion of the Province. At approximately 10,500 years B.P., the Project Site\Study Area was just east of the one of the last province-wide ice sheets centered approximately at Trafalgar, Guysborough County. This ice sheet was an advancement of ice during a 200 year cold period known as the Younger Dryas Period. (3)

Evidence from deep-ocean sediments indicate that there have been at least 16 glacial periods that lasted approximately 100 thousand years each. The last glacial period was the Wisconsin Glaciation which began 75 thousand years ago and ended between 12 and 10 thousand years ago. After extensive sampling in Nova Scotia, evidence indicates that successive glaciation had four distinct phases with different and shifting ice centers. (4)

The Phase 1 ice flows moved eastward across the region including Prince Edward Island and Cape Breton Island before shifting flow direction southeastward across the present day Bay of Fundy, Mainland Nova Scotia and Cape Breton Island. The Ice flowed across the Project Site in this phase in a south eastward direction and then at some time shifted to a more south flow direction. (4)

The Phase 2 ice center was located north of present day Prince Edward Island with flow direction south over mainland Nova Scotia and southeast over lower southeast portions of Cape Breton Island. The Phase 2 ice flow direction was south over the Project Site and Study Area. (4)

The Phase 3 ice center was parallel to the present day Nova Scotia Atlantic Coast and extended on land from Cape Sable, through Cape Canso to offshore and approximately south of present day Louisbourg, Cape Breton Island. From this ice divide, ice flows moved northeast across eastern portions of Cape Breton Island, northwest across western portions of Cape Breton Island, northeast across northern portions of the mainland from Cape George to Minas Basin west to northwest across the present day Annapolis Valley. On the Atlantic side of the ice divide, all flow directions were in a southeast direction over the Scotia Shelf. The Ice sheet center was over the Project Site during this phase with the flow moving southeast and northwest from the Project Site and Study Area (4)

Phase 4 was a period when several remnant ice sheets were located throughout the province and advanced and receded in a radial direction from the ice centers. Cape Breton had two glaciers that were centered on the Highlands and another centered on the Bas d'Or Lakes. The Chedabucto Glacier filled the present day Chedabucto Bay and St. Georges Bay with a westward ice flow direction across the central portion the province into the Northumberland Strait, Minas Basin and the Atlantic. The Chignecto Glacier was centered near Baie Verte and Cape Tormentine and the South Mountain Ice Cap was centered between the Bay of Fundy and Atlantic Coast near present day Kejimikujik National Park. The direction of ice advance of the Chedabucto Bay Glacier was a west to southwest flow direction across the mainland. (4)

The last of the glaciers gradually receded with the Bay of Fundy being ice free between 16 and 14 thousand years ago. Northern portions of the province experienced periodic advancement and stalls in movement of remnant ice caps. By 13 thousand years ago, the ice sheets had receded to the approximate coastline of today and then only residual ice caps remained in highland areas at approximately 12 thousand years ago. (4)

Between 11 and 10 thousand years ago, the Younger Dryas Period was an abrupt climate change with a cold period lasting approximately 200 years. During the Younger Dryas Period, previously colonized plants that followed the once receding glaciers were covered in permanent snowfields and some large mammals became extinct. (5) The cold period of the Younger Dryas may have pushed the Paleo-Indian people south with advancing ice sheets and permanent snowfields or they may have abandoned the region. (9)

As the last remnant glaciers receded and the climate warmed again. The landscape was gradually colonized by tundra vegetation of willow shrubs and herbaceous plants between 10 and 7.5 thousand years ago and were replaced by boreal vegetation such as fir, spruce and birch until 6 thousand years ago when pine and oak was prominent. (6) Temperatures were 2 degree Celsius warmer than today for period until 4 thousand years ago and forests of hemlock mixed with beech and maple was the dominant vegetation. Gradual cooling to present day temperatures and increased moisture favoured spruce forests. (7)

Since the end of the last ice age the Chignecto Isthmus provided the land corridor for plants and animals as well as people to migrate into Nova Scotia as well as assisted airborne species migrations. (8)

The landscape the receding ice sheets left behind within the Study Area is a mix of barren bedrock knolls and deep till filled depressions and scattered waterbodies. The Natural History of Nova Scotia has the Project Site located within the Atlantic Interior Region 400, Quartzite Plains District 410, Halifax Quartzite Barrens 413a, The Quartzite Plains are typically underlain with resistant Metamorphic bedrock of Greywacke and Shist that



produced till and soils that provide little support for growth other than stout trees, heath plants and shrubs. The Halifax Quartzite Barrens (413a) typically average a 3m cover in Quartzite till scraped thinner on ridges and thicker in the swales. There are drumlins or elongated drumlin-like hills of thick till derived from sandstones and siltstones further north and deposited by melting glaciers. Well drained stony-sandy loams developed on quartzite tills with Halifax Soils covering most of the Halifax Quartzite Barrens with poorly drained Danesville Soils in low areas as well as Aspotogan Soils and Peat. (10)

The soils covering the area of Exit 5A is split between Danesville soils southwest of the new westward extension and Bridgewater soils covering the area to the northeast. Bridgewater soils are described as Brown Shaly Loam developed from Shaly Till and Slate bedrock with good drainage. Danesville soils are described as Dark Grayish-Brown Sandy Loam developed on Sandy Loam Till and Quartzite Bedrock with imperfect drainage. The soils covering the ridge crossing portion of the new alignment are Halifax soils are described as Brown Sandy Loam developed on Stony-Sandy Loam Till and Quartzite bedrock with good to excessive drainage. The remainder of the new alignment from the bottom of the northwest ridge slope to Trunk 2 and beyond are covered with Wolfeville Soils. Wolfeville soils are described as Dark Reddish-Brown Loam to Sandy-Clay Loam developed on Reddish-Brown Loan Till and Sandy Clay Loam Till derived from Shale and Sandstone bedrock and with good drainage. Wolfeville soils are suitable for most crops when deep enough.

The Study Area southeast portion includes the eastern end of another Natural History of Nova Scotia Regions, District of Granite Ridge 453. The Granite Ridge 453 is a prominent 8 to 10km narrow Granite outcrop that stretches inland from Spry Harbour and approximately 78 km westward to near the eastern shore of Soldier Lake. Granite landscapes are highly erosion resistant and forms high ground in the form of shapeless ridges, knolls and waterlogged depressions with a thin till veneer cover or exposed bedrock. The Granite Ridge 453 along the Eastern Shore is narrow and forms an east/west drainage divide with drainage roughly north and south in a deranged pattern or following fault lines such as Lake Major and Porters Lake. The west limits Granite

Ridge 453 rises about 50 to 60m above the landscape at roughly 150 m elevation, where the Granite Ridge abruptly ends approximately 3.5 km southeast of the Project Site Exit 5A. (10)

## **Archaeology**

The Natural History of Nova Scotia lists 5 Archaeological time periods for the Province of Nova Scotia that are prior to and including European contact with the Mi'kmaq (9):

### 11,000-10,000 Years BP, Paleo-Indians

The earliest evidence of early peoples east of the State of Maine is found at the foot of the Cobequid Mountains at Debert, Nova Scotia. There is evidence of an encampment on the site dated to be in use roughly 11,000 to 10,500 years BP. (11). At this time, local ice sheets remained centered at locations of Bras d'Or Lakes/Highlands of Cape Breton, Canso, Baie Verte and South Mountain adjacent the Annapolis Valley. There was a large ice sheet centered on the Eastern Mainland of province with ice flows into St. Georges Bay, Minas Basin and along the Eastern Shore. (4) The time of the Debert Site occupation is within the same period of the glacial re-advances of the Younger Dryas Period of 11,000 and 10,000 years BP. Increasingly harsh conditions are thought to have caused the early peoples to abandon the region. (9)

### 10,000-5,000 Years BP, the Great Hiatus

The rising sea levels and submerging coastlines are thought to be responsible for the lack of physical evidence of early peoples for this time period. Any evidence of coastal settlements of that period would be lost to coastal erosion and submergence. (9)

Sea level rise on the Atlantic Coast was a combination of land rebound after ice sheets receded, rising ocean temperatures and water released by melting glaciers. (9) As the thick and heavy ice sheet centers depressed the earth's mantle, the areas of mantle along

the ice sheet margins were less weighted by ice and rose slightly through displacement. There was an ice sheet center located in the Gulf of St Lawrence. As the weight of the ice sheets diminished with melting, the depressed center areas of the Gulf rebounded and rose in elevation while the previously raised mantle at the former ice margin, lowered in elevation. (13)

#### 5,000-3,500 Years BP, the Archaic Period

A period characterised by physical evidence of stone tools some of which are found offshore and possibly lost during deep water fishing. There was a cultural influence or cultural presence of peoples in the southern part of the province dated at a time between 3,500 and 2,500 BP known as the Susquehanna Tradition. The Susquehanna Tradition originated in area of the mid-Atlantic states of today and is identified by some unique artifacts. (9)

#### 2,500-500 Years BP, the Ceramic Period

Evidence of pottery is introduced to the archaeological record during this period as are burial mounds. Ceramic period sites are scattered throughout the province and a 10m diameter burial mound was discovered at Whites Lake, HRM, dated at 2,300 BP. (9)

#### 500-100 Years BP, the Contact Period

The first European contact with the Mi'kmaq was most likely with Portuguese fishermen roughly 500 years ago. (9)

However, there are other period delineations being used in the Province and Maritime publications which differ in the number of periods, names, and time span of periods. The Archaeological Periods Table below places the periods in context with each other. It is useful to provide these various periods for reference and context when reviewing archaeological reports and placing in time the artifacts and features found.

Artifacts are archaeological objects that can be recorded and removed from the site as flakes (chips from tool or point manufacture), arrow/spear tips (points), tools, bones, preforms (unfinished tool or point blanks) and pottery sherds. Features are archaeological finds that cannot be removed from the site and can only be recorded such charred or discoloured ground, a storage pit or Historic Period building foundations as some examples.

Time	Natural History of N. S.	Archaeological Periods		
		* Periods	* Northeastern Periods	* Maritime Region Tradition
			* (Dates are Approximate)	
11,000 B.P.	< Paleo-Indians		< Paleo-Indian	< Paleo-Indian
	11,000 - 10,000 yrs. B.P.	< Early Period	11,000 - 10,000 yrs. B.P.	11,000 - 10,000 yrs. B.P.
	↓	10,600 - 6,000 yrs. B.P.	↓	↓
10,000 B. P.	< Great Hiatus		< Early Archaic	—
	10,000 - 5,000 yrs. B.P.		10,000 - 8,000 yrs. B.P.	?
	?		↓	?
8,000 B.P.	?		< Middle Archaic	?
	?		8,000 - 6,000 yrs. B.P.	?
	?	↓	↓	?
6,000 B.P.	?	< Middle Period	< Late Archaic	< Laurentian
	?	6,000 - 3,000 yrs. B.P.	6,000 - 2,500 yrs. B.P.	+/- 5,000 yrs. B.P.
	< Archaic Period			< Maritime Archaic
	5,000 - 3,500 yrs. B.P.			5,000 - 3,700 yrs. B.P.
4,000 B.P.	↓			< Susquehanna Tradition
	< Susquehanna Tradition			4,000 - 3,500 yrs. B.P.
	3,500 - 2,500 yrs. B.P.			—
		↓	↓	?
3,000 B.P.		< Late Period	< Ceramic (Woodland)	< Maritime Woodland
		3,000 - 500 yrs. B.P.	3,000 - 500 yrs. B.P.	+/- 3,000 yrs. B.P.
	↓			- Present
2,500 B.P.	< Ceramic Period			
	2,500 - 500 yrs. B.P.			< Middlesex
				+/- 2400 yrs. B.P.
2,000 B.P.	↓	↓	↓	↓
500 B.P.	< Contact Period	< Historic Period	< Historic	< Mi'kmaq, Maliseet and
	500 -100 yrs B.P.	500 yrs B.P. - Present	500 yrs B.P. - Present	European Traditions
	—	↓	↓	↓
Present (1950)	—	—	—	—

Table 2. Archaeological Periods (9)(12)

An archaeological survey of the Shubenacadie River System in 1970 inventoried and revisited known Pre-Contact archaeological sites along the system from Lake Charles to the Stewiacke River. Known sites within the Study Area visited during the 1970 survey

include a cluster of sites located at the outlet of Shubenacadie Grand Lake to Fletcher's Lake, approximately 550m west of the Project Site/Study Area center. This cluster produced many artifacts during canal construction in the 1850's and the clearing and cultivation of a family farm. The Canal Engineer's collection was documented as 80 piece collection of ground stone forms of gouges and adzes, grooved axes, plummets, chipped stone specimens including side notched, corner notched and stemmed points. The mostly Archaic Period collection was later donated to the Nova Scotia Museum. Later site investigations in the 1960's produced side notched, corner notched points, lanceolate point, leaf shaped and triangular knives, scrapers, ground slate and pot sherds. Little remains of the sites today after development of the area. (14)

Three known sites of artifact finds are approximately 4.3 km south of the new alignment intersection with Trunk 2 at Wellington Station, along the narrows between Fletcher's Lake and Lake Thomas. The sites produced at least 1 Archaic Period gouge artifact. The sites were determined to be destroyed by development at the time of the 1970 survey. (14)

A gouge was found approximately 3.7km southwest of Exit 5A, located on the northwestern shore of Soldier Lake near the former north outlet to Miller Lake. The fully grooved gouge is thought to be an Early-Middle Archaic Period artifact dating 9000-6000 years. No material type was given. (15) The location is now heavily disturbed by a dam/dyke structure as part of the controlled lake level infrastructure. The isolated find at Soldier Lake was not part of the 1970 Shubenacadie River System Survey.

Approximately 9.4 km north of Exit 5A and outside the MEKS Study area, the 1970 Shubenacadie River System Survey visited a series of sites between the Shubenacadie Grand Lake outlet into the Shubenacadie River and Enfield. The pre-contact to historic sites were used as fishing stations adjacent river riffle runs where traces of weirs can be seen today in Google Earth Imagery. Whether these weirs are pre-contact or present-day is unknown but demonstrates the utility of the locations. These sites were also locations of tool making. (14)

The 1970 survey Shubenacadie River System Survey was unclear about the specific artifact material types. One source studied the artifacts recovered from one of the fishing sites hypothesized how the tools were produced. Nearly 900 artifacts were recovered from the one site alone and 315 artifacts were studied in detail. The Source grouped the artifact material types as Quartz and further references Quartz as in the Silica Group of rock forming minerals that includes Chalcedony, Cristobalite, Silica Glass, Flint and Chert. It cannot be determined with any certainty at this time if any of the other Silica group were among the artifact material types in the Shubenacadie River fishing site collection. (16)

The collection origin site location produced artifacts indicating Late Archaic to Ceramic use and possible earlier use of the site. (14) To find a representative sample of material types found at a prehistoric site of similar time frame, the Melanson Site located some 65km northwest of the Goffs MEKS Project Site provides a good sample. The Melanson Site is a large 1.8km long x 0.75km wide complex of individual fishing sites that covers an area of both sides of the Gaspereau River near the tidal influence. Most of the artifacts found are Woodland/Ceramic Period with Archaic Period artifacts a rarity but, found on-site with another artifact suggesting earlier Archaic use. (17)

The Melanson Site(s) have long been the source of artifacts for farmers, amateur collectors and academics, leaving little remaining today. One collection alone yielded the following material types: (17)

Banded Rhyolite 1	Black Rhyolite 1	Rhyolite 17
Sheared Rhyolite 2	Ignium Rhyolite 1	Quartzite 11
Vein Quartz 10	Meta-Greywacke 2	Chalcedony 9
Jasper 1	Chalcedony-Jasper 6	Chalcedony-Banded Agate 1
Banded Jasper 1		

Much of the Melanson Rhyolite and Chalcedony materials were sourced locally. The presence of 11 specimens of Quartzite, 10 Vein Quartz and 2 Meta-Greywacke give good

indication of the raw resources that were of value to early peoples. The tools are a collection of knives, scrapers, preforms, blanks with the Meta-Greywacke was found in heavy tools as celts. (17)

The Mi'kmaq Name for Shubenacadie Grand Lake is *Tulugadik*, meaning “camping place”. (18) Significant tool making occurred approximately 10.4 km north of the MEKS Project Site/Study Area center at the Shubenacadie River fishing site. (16) Quartz for tool making had to be sourced by early peoples and preferably within close proximity and of easy access.

Vein Quartz may be available within the Goldenville Formation underlying Exit 5A and the northwest extension of Aerotech Drive providing there are natural outcrops. There are other areas within the larger Study Area as possible sources of quartz. The barren areas of the Granite Ridge 453 provided another possible source for Quartz.

## **Geology**

A review of Provincial scale geology Map ME2000-1 shows Exit 5A and roughly 300m northwest of Highway 102 is underlain with Goldenville Formation bedrock. The Goldenville Formation (€OMg) is described as Sandstone Tubidites and Slate with places metamorphosed into Schist and Gneiss. (2) Schist is a coarse grain metamorphic rock with a flat plate-like grain structure that allows it to be split into layers or slabs. Gneiss is a foliated metamorphic rock formed with parallel bands of mineralization and colour throughout the rock. (20) Further northwest for the full length of the new road alignment is underlain with Halifax Formation Bedrock. Halifax Formation (€OMh) is described as Slope-Outer shelf Slate, Siltstone, minor Sandstone, Iron-Manganese nodules and metamorphosed into Schist in some places. (2)

The northern contact between Goldenville Formation to the northwest and Halifax Formation to the southeast is located at the approximate south shore of Shubenacadie

Grand Lake before the outlet to Fletchers Lake including Beaver Bank Lake and Bennery Lake. (2)

The granite bedrock of an unnamed formation (M-LDmbmg) muscovite biotite monzogranite underlies the Granite Ridge (453) with the west pointed contact area into the Goldenville Formation approximately 3.5km to the south. Map ME2000-1 shows granite of the same type as a patch centered approximately 2.7km southwest of the new alignment proposed intersection at Wellington Station and underlies the high ground between Fletcher’s Lake and Kinsac Lake. (2)

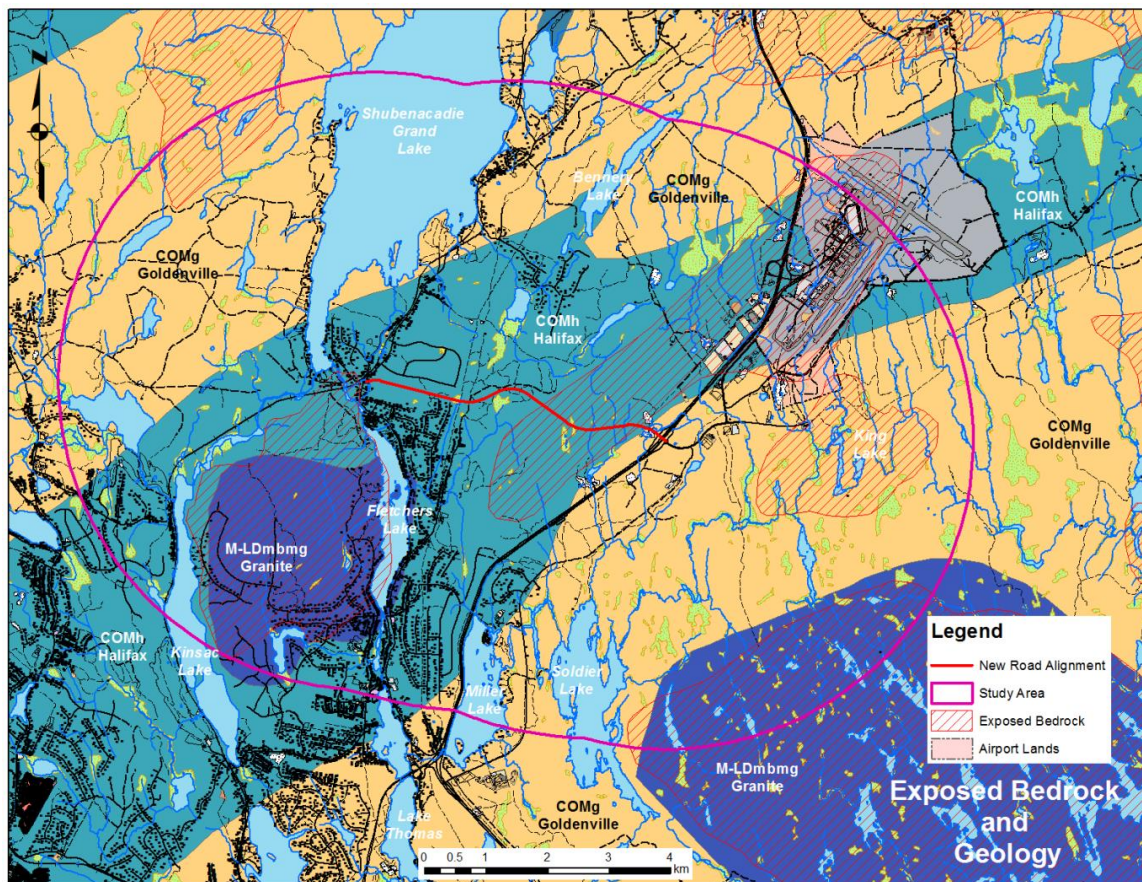


Figure 4. Exposed Bedrock and Geology

The Provincial scale mapping of surficial geology shows Stony Till Plain covers the Goldenville Formation bedrock for approximately 300-400m northwest of Trunk 2. Stony Till Plain (Ground Moraine) is described as stony, sandy matrix, material derived from local bedrock sources. As the new road alignment crosses the ridge traveling northwest,



the route crosses an area mapped as Bedrock, roughly 1.5 km wide. Bedrock is described as bedrock of various types and ages; glacially scoured basins and knobs, overlain by thin, discontinuous veneer of till. As the new alignment reaches the bottom of the steep northwest slope of the ridge, the Halifax Formation bedrock is covered with Silty Till Plain. Silty Till Plain (Ground Moraine) silty, compact, material derived from both local and distant sources. (3)

Thick tills hide bedrock and make outcrops even more important to early peoples as any useful stone was revealed for possible discovery and accessible for extraction with minimal effort.

Areas of possible exposed bedrock diminish in size and number further inland from the coast. There are patches classified as Bedrock centered approximately 2.8 km east of the Exit 5A and south of the Airport. A review of Google Earth imagery shows signs of exposed Goldenville Bedrock south of the Airport, west of King Lake and east of Queen Lake. A large area classed as bedrock is centered just north of Oldham, approximately 8.2km northeast of Exit 5A. The area seems heavily disturbed by mining and exposed bedrock was not obvious in the Google Earth imagery. A patch of Bedrock over Goldenville Formation is located on the western shore of Shubenacadie Grand Lake, underlying the western boundary of Shubenacadie I.R.13 and extending approximately 5.8 km southwest. (2)(3) A large area of exposed Goldenville Formation is centered approximately 10km east of the Exit 5A. A review of Google Earth imagery indicates exposed bedrock and bedrock ridges within the same area. (3)

There is an area over Halifax Formation mapped as Bedrock with no till cover, underlying the ridge centered approximately 1.0km north of the Exit 5A with exposed bedrock confirmed with a review of Google Earth imagery. Goldenville Formation underlies the area of Bennery Lake with the area south of Bennery Lake showing signs of exposed bedrock in Google Earth imagery. There are large mapped areas of no Till cover (Bedrock) over Goldenville Formation Bedrock north of Soldier Lake, Between Soldier Lake and Miller Lake. A review of Google Earth Imagery shows some signs of exposed

bedrock and Google Earth Street View images of road cuts show bedrock near the surface but worn smooth with very thin soil cover supporting tree growth. (2)(3)

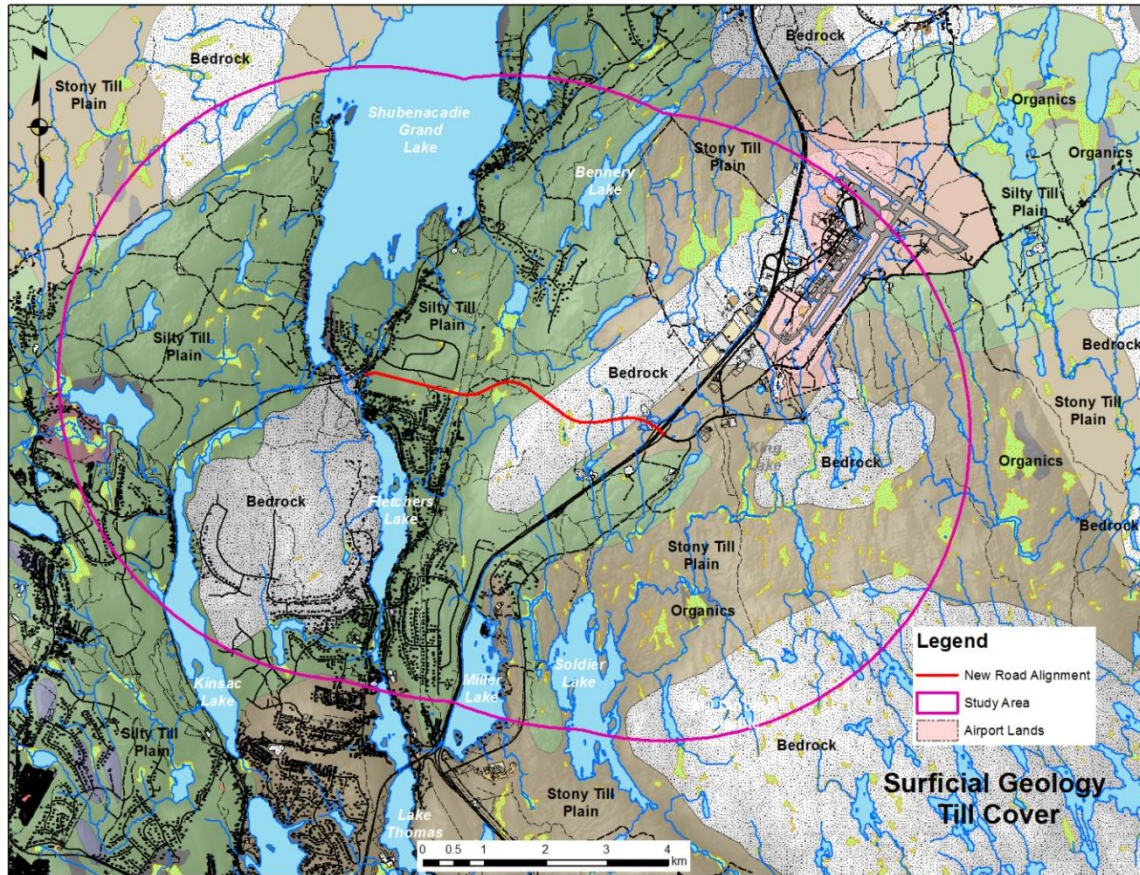


Figure 5. Surficial Geology and Till Cover

Quartz dissolves and percolates easily under heat and pressure such as was present in igneous rock (Granite) formation. A liquid brine is produced and carries the minerals into existing cracks and fissures of existing rock. The liquid enters cracks and fissures of a cooler formations and results in milky white to clear and coloured seams of recrystallized quartz. (54)

The most promising sources of Quartz found within 12 to 13 km proximity of the Fishing/Toolmaking sites near the outlet of Shubenacadie Grand Lake, are the barren high ground between Fletcher's Lake and Kinsac Lake as well as the barrens of the Waverly Game Sanctuary, east of Soldier Lake. (2)

Other features within the Study Area that may have been of interest to early peoples includes the 5m elevation drop over a distance of roughly 157m of a watercourse draining toward Soldier Lake, located approximately 3.1km directly south of the Exit 5A. The 1909 Geological Survey of Canada Mapping shown in the Archaeological Study for this Project shows “Fall 15” and “Gorge” at this location on “Johnson River”. (22)

The thin tills of Halifax Quartzite Barrens 413a within the Study Area support an important food source of blueberries as well as other heath plants. Deer are common throughout and inland bogs and barrens provide habitat for plants and animals. (23)

### **Traditional Mi’kmaq Territory**

The Project Site and Study Area are within the Traditional Mi’kmaq Territory of Eskikewa’kik. The traditional territories are important reminders of the political and territorial system that most likely existed in the pre-contact period and continued into the Post-Contact Period and later Historic Period. The Traditional Mi’kmaq Territories are referenced today in response to modern events and issues that potentially impact each territory.

The traditional lands of the Mi’kmaq were comprised of 7 Districts collectively known as Mi’kma’ki. The sources reviewed provided very general District Boundaries that have just enough detail to give an approximation of boundaries along the coast but not much detail for the interior limits. (24)(25)(26)(27)

Using the general boundaries provided by the sources, MGS interpreted the source maps and recreated detailed District boundaries of the 7 districts of Mi’kma’ki using significant watersheds as the defining features on the ground. The district boundaries may be adjusted after review by the Mi’kmaq and Wolastoqiyik (Maliseet) Communities. Until then, the 7 Districts of Mi’kma’ki are proposed as follows:

Eskikewa'kik (Skin Dressers)

Eskikewa'kik includes all lands and waters draining into the Atlantic from St. Margarets Bay including Big Indian Lake, Chebucto (Halifax), Eastern Shore, Strait of Canso to Cape Blue on St. Georges Bay. The District includes the entire Musquodoboit River watershed, a portion of the Shubenacadie River to and including the Stewiacke River watershed draining into Cobequid Bay. In addition, Eskikewa'kik includes the West St. Marys River watershed, East St. Marys River watershed, Country Harbour River watershed as well as the Salmon River and Milford Haven River watersheds draining into Chedabuctou Bay.

Kespek (Last Land)

All the land and waters draining into the Gulf of St. Lawrence north of Escuminac Point, N. B. including the Miramichi River watershed and north to include the Gaspé Peninsula and south shore of the St Lawrence River. This was the last land to be added to Mi'kmaq territory after a war with the Iroquois.

Siknikt (Drainage Area)

All the lands and waters draining into the Gulf of St. Lawrence and Northumberland Strait south of Escuminac Point, N. B. to and including the Wallace River watershed and Wentworth Valley. All the lands and waters draining into Cobequid Bay, the Minas Basin, and Bay of Fundy west of Five Islands N. S. and including the Petitcodiac River watershed and all drainage along the Bay of

Fundy coast to Mispic Point on the east side of St. John Harbour.

Epekwtik (Lying in the Water)

aqk Piktuk (The Explosive Place)

This District combines the entire Island of Prince Edward Island with all the lands and waters draining into the Northumberland Strait and St. Georges Bay from Mainland N. S. east of Abercrombie Point to Cape Blue. The District includes the East River of Pictou watershed to and including the Tracadie River and Little Tracadie River watersheds.

Sipekni'katik (Wild Potato Area)

This District includes all lands and waters draining into the Northumberland Strait from Macfarlane Point, Wallace Harbour to and including the Middle River of Pictou watershed. Sipekni'katik also includes all the lands and waters draining into Cobequid Bay, Minas Basin and Bay of Fundy from Five Islands Carrs Brook and Economy River watersheds to and including North River and Salmon River, Avon River, Cornwallis River watersheds to MacNeily Brook near Margaretsville. In addition, Sipekni'katik includes all lands draining into St. Margarets Bay and Mahone Bay including the Ingram River watershed to and including eastern shore of the LaHave River.

Kespukwik (Last Flow, Land Ends)

This District includes all the lands and waters draining into the Bay of Fundy from approximately

Margaretsville, the Gulf of Maine coast and the Atlantic to the western shore of the LaHave River. The LaHave River Watershed may have divided by east and west districts with the eastern watershed a portion of Sipekni'katik and the western watershed is a portion of Kespukwik. Champlain's early map of the LaHave River show two separate Mi'kmaq communities on either side of the River located near Upper Kingsburg and at Green Bay near Petite Riviere (LaHave Islands Marine Museum, 2016). This may indicate a community of each district sharing the LaHave River.

Unama'kik (Land of Fog)

Aqq Ktaqmkuk (Land Across the Water)

This District combines all of Cape Breton Island with the Southern Coast of Newfoundland.

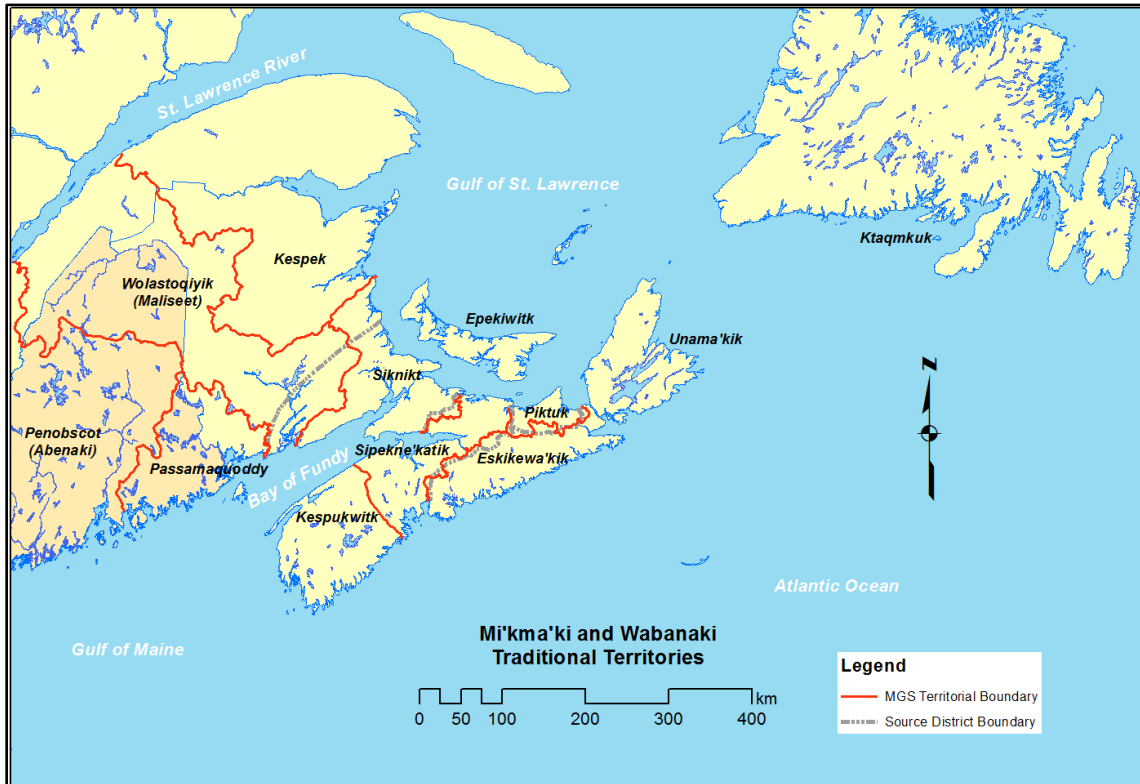


Figure 6. Traditional Mi'kmaq Political Districts with Wolastoqiyik, Passamaquoddy, partial Penobscot Traditional Territories. (24)(25)(26)(27)

The Project Site and Study Area are within the Traditional Mi'kmaq Political District of Eskikewa'kik (Skin Dressers). Under the Indian Act assigned Indian Reserves, Shubenacadie I.R.13 is a 3978966.2 sq. m., 397.9 hectares, parcel located on the western shore of Shubenacadie Grand Lake approximately 8.0 km northwest of the Project Site. (1) Shubenacadie I.R.13 is assigned to Sipekne'katik First Nation.

Mi'kmaq had an intimate knowledge of the ecology of their territory and fit their lives to seasonal cycles of the vegetation and animals and fish. Due to climate conditions, agriculture for food was a risk for Mi'kmaq. (28) Highly mobile Bands consisting of several related families would assemble at favorite camp sites. In the fall and winter the camps would disperse into small groups of 10-15 people for winter hunting. (28)

It was the duty and responsibility of the chief of each political district to assign the hunting territories to families and any changes were made in the presence of the Council

of Elders which met in the spring and fall of every year. (29) Hunting districts of approximately 200-300 square miles were assigned to families. (28)

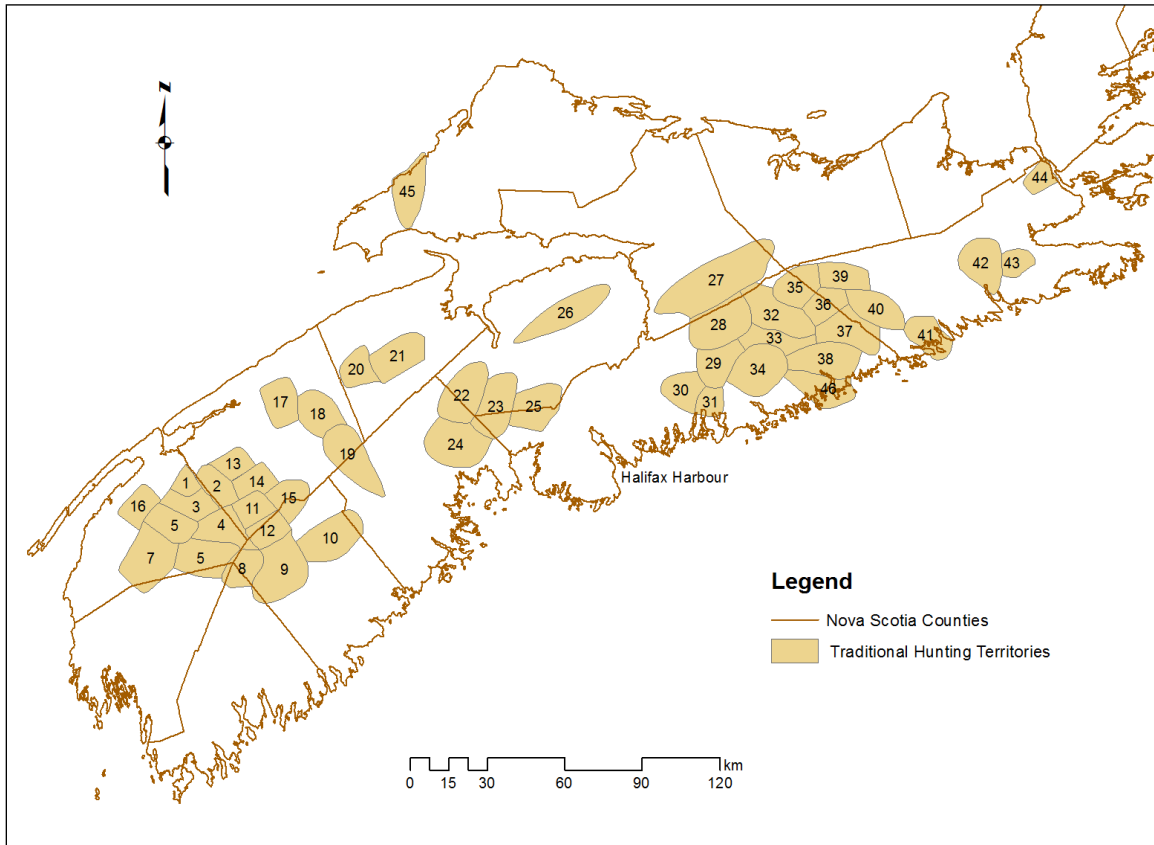


Figure 7. Mainland Nova Scotia Traditional Hunting Territories (30)

The districts were usually surrounded lakes and rivers and were passed on to sons unless there were no sons where the district was then assigned to another family. (30) The Mi'kmaq respected the boundaries of the assigned territories and only took from the land what they needed for the family to survive thereby preserving game and fish for the family's future survival. (29)

The hunting territories of the mainland Nova Scotia were numerous compact interior territories that encompassed the watersheds of interior lakes and rivers as Mi'kmaq did most their game hunting during colder months of the year when they moved inland from the summer coastal camps. (30)(29) Cape Breton Island Mi'kmaq hunting territories are



larger and more regional encompassing shorelines and interior river systems indicating a more sparse population. (30)

<b>Map Reference</b>	<b>Name of Family</b>	<b>Geographic Territory</b>
25	Joe Brooks	Uniacke Lake below Mt. Uniacke
30	Joe Cope	North of Jeddore
28	John Newell Cope	Musquodoboit River between Middle
		Musquodoboit and Musquodoboit

Table 3. Mainland Nova Scotia Traditional Hunting Territories Recorded Circa 1919 (30)

The nearest known Traditional Hunting Territory to the Study Area is Territory No. 25 assigned to Joe Brooks and covers the area of Uniacke Lake below Mt. Uniacke. Hunting territory No. 30 assigned to Joe Cope and covers the area north of Jeddore. A third known Tradition Hunting Territory, No. 28 assigned to John Newell Cope covers the Musquodoboit River (Valley) (30) and intended destination of the Guysborough Road. The territorial reference numbers pertain to the source’s original reference system and it is unknown if territorial numbers were assigned by Chiefs.

The warmer months were times of abundance with surrounding areas of coastal camps providing fish, shellfish, fowl and eggs. Offerings were made to spirits but the Mi’kmaq rarely stockpiled enough food for the entire winter. They brought with them from the coast smoked and sun-dried seafood, dried and powdered hard boiled eggs. Berries were boiled and formed into cakes and were sun-dried. Grease and oils from boiled marrow and fat were stored and transported in animal bladders. Root vegetables such as *segubun* (wild potato) which was similar to today’s sweet potatoes and wild nuts were also part of the winter food supply. (29)

<b>Month</b>	<b>Seasonal Locations</b>	<b>Seasonal Groupings</b>	<b>Food Resource</b>
Jan.	Sea Coast	Bands	Smelt, Tomcod, Seals & Walrus Beaver, Moose, Bear, Caribou
Feb. (Period of Winter Famine Begins)	Inland	Bands & Family Units	Smelt, Tomcod (ending) Seals & Walrus, Beaver, Moose, Bear, Caribou

Mar. (Period of Winter Famine)	Inland	Bands & Family Units	Smelt, Seals & Walrus (ending) Scallops, Crab, Urchins, Winter Flounder, Beaver, Moose, Bear, Caribou
April (Period of Winter Famine ends)	Sea Coast	Villages	Smelt, Winter Flounder, Scallops, Crab, Urchins, Sturgeon, Brook Trout, Alewife, Herring, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
May	Sea Coast	Villages	Smelt, Scallops, Crab, Urchins, Sturgeon, Salmon, Brook Trout Alewife, Codfish, Capelin, Shad, Mackerel, Skates, Herring, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
Jun.	Sea Coast	Villages	Scallops, Crab, Urchins, Sturgeon, Salmon, Brook Trout Alewife, Codfish, Capelin, Shad, Mackerel, Skates Lobsters, Spring Bird Migrations, Beaver, Moose, Bear, Caribou
Jul.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Capelin, Shad, Mackerel, Skates Lobsters, Spring Bird Migrations, Beaver, Moose, Bear, Caribou, Strawberries, Raspberries
Aug.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Skates Lobsters, Beaver, Moose, Bear, Caribou, Strawberries, Raspberries, Blueberries, Ground Nuts
Sept.	Sea Coast	Villages	Scallops, Crab, Urchins, Codfish, Skates, Salmon, Herring, Eels, Fall Bird Migrations, Beaver, Moose, Bear, Raspberries, Blueberries, Ground Nuts, Cranberries
Oct.	Small Rivers	Villages	Scallops, Crab, Urchins, Smelt Codfish, Skates, Salmon, Herring, Eels, Brook Trout, Fall Bird Migrations, Beaver, Moose, Bear, Blueberries, Ground Nuts, Cranberries
Nov.	Inland	Bands	Smelt, Tomcod, Turtles, Seals, Beaver, Moose, Bear, Ground Nuts, Cranberries
Dec.	Rivers	Bands	Smelt, Tomcod, Turtles, Seals, Beaver, Moose, Bear, Ground Nuts,

Table 4. Mi'kmaq Annual Subsistence (31)

## **The Shubenacadie River System**

In 1604 Samuel de Champlain sailed south along the Acadia Atlantic Coast and into the Bay of Fundy where there were favorable soils in the Annapolis Valley to begin a permanent settlement and founded Port Royal. (32) Various sources have different dates as to when Champlain explored Halifax Harbour. Dates given are of 1604 during his earliest voyages, (32) and 1631 during his voyage to England, France and return to New France, (33) and 1607 during an exploration of the Atlantic on a sail between Port Royal and Canso. (34) When Champlain did first pass Halifax Harbour the only recorded remark was that the Harbour was “a good safe bay”. (32)

Champlain made no mention of the Mi’kmaq that spent the warm months of the year on the harbour shores and the coastline east and west of the harbour. The harbour was known to the Mi’kmaq as “Kjipuktuk” translated as “Great Harbour”. (35) Historical records and accounts refer to the Mi’kmaq name as “Chebooktook” meaning “at the biggest harbour” and later it was referred to as “Chebuctou” which is still commonly used today. (32)

Kjipuktuk is an ice free harbour with a large sheltered basin that attracted European sailors as well as the Mi’kmaq for the shellfish and fishing and trading with early European fishermen fishing and drying their catch on the beaches of McNabs Island and inner harbour coves in 1698. (32) At the end of the basin was a river and valley that was a transportation route to the Bay of Fundy as well as another transportation route at the present day Dartmouth Cove and chain of lakes leading to Shubenacadie Grand Lake and the Shubenacadie River. The Mi’kmaq would use these routes to gather at Kjipuktuk for an annual spring feast seven days after the first full moon in May. The French Missionary Father Louis Peter Thury named the annual feast the Feast of St Aspinquid of Agamenticus and exploited to establish a missionary at Chebucto until his death in 1699 and was buried at present day Point Pleasant. The feast was later celebrated in various forms by Mi’kmaq and non-Mi’kmaq today on the shores of the Northwest Arm. (36)

The French abandoned the fishing station they established on McNabs Island approximately at the time of Father Louis Peter Thury's death and moved their operations to Port Razoir which is present day Shelburne. The Mission Father Thury had established in Chebucto for the Mi'kmaq had ended as the French Missionaries could not convince the Mi'kmaq to stay and settle in one location. (33)

The Shubenacadie River System provides an almost continuous water travel route with minor elevation change from the Atlantic Coast at Halifax Harbour to Cobequid Bay at Maitland. From Dartmouth Cove, Halifax Harbour, the Shubenacadie River System route begins at Sea Level and climbs north to an approximate 15m elevation in less than a kilometer distance to Sullivan's Pond, the first in a chain of lakes. The next lake upstream in the chain is Lake Banook followed by Lake Micmac and both at the same approximate elevation as Sullivan's Pond. After an additional 10m climb to 25m in elevation over a 1.5km portage is Lake Charles followed by Lake William which is approximately 10m drop in elevation over a short distance from Lake Charles. The chain lakes of Lake William, Lake Thomas and Fletcher Lake add another 14km to the approximate 10km travelled to the end of Lake Charles to arrive at Shubenacadie Grand Lake. Shubenacadie Grand Lake is approximately 13 km long in a NE-SW direction and roughly 3km across at the widest section and is at an elevation of approximately 15m above Sea Level. Travelling north about 2/3 lake distance along the east shore of Shubenacadie Grand Lake, the Shubenacadie River meanders in a northeast general direction along the valley floor for another 33 km in straight flight distance to where the Stewiacke River flows southwest into the Shubenacadie River from the east bank. The Stewiacke River provides a NE-SW route that extends approximately 60 km inland from the Shubenacadie River. Other rivers such as the Nine Mile River flowing southeast and the Gays River flowing west also meet the Shubenacadie River along the distance between Shubenacadie Grand Lake and Stewiacke. The Shubenacadie River widens to 1.5km at the widest section as it continues to meander from where Stewiacke River joins for another approximate 25km in a northwest flow until it reaches Cobequid Bay at Maitland. (1)

In 1749, the Honourable Edward Cornwallis, Captain General, Governor-in-Chief, set out for Annapolis with foreign Protestant settlers following in transports. He was then to proceed to Louisbourg with the transports to evacuate the English troops and transport them to Chebucto. (37) However, he was wind-blown into Chebucto and decided to stay and begin the settlement of Halifax. Cornwallis found some French families on both sides of the harbour upon his arrival but no Mi'kmaq. After surveying the harbour he decided against the plan provided to him as Sandwich Point was too exposed to Southwest storms and settlement within Bedford Bay was too far inland for fishermen and was subject to siege by blockade of the Narrows. He decided to build the settlement on the side of a hill with a commanding view and with surrounding shores within cannon shot. (38)

The fortification of Halifax was priority with Cornwallis and a necessity against the Mi'kmaq threat of attacks. In addition to the series of walls and Blockhouses surrounding the new town of Halifax, Fort Sackville was completed in the first year on raised land where the Sackville River flows into the Bedford Basin. Manned by Captain Goreham and his Rangers, they guarded and patrolled the main transportation route between Halifax and a post established at Minas on the Bay of Fundy. (39)

The French Mission Sainte Ann was located deep within Mi'kmaq territory on the west bank of Shubenacadie River. It was here where Father Abbe' Jean-Louis LeLoutre provided spiritual services to the Mi'kmaq between 1738 and 1749 and where he incited the Mi'kmaq to fight the English and continued to use the mission as a staging area for Mi'kmaq attacks on Halifax. (40) A letter written by LeLoutre in July, 1749 stated that "we cannot do better than to incite the Indians to continue warring on the English". Not completely without a purpose of their own, the Mi'kmaq attacks that followed were a message to Cornwallis that they had the rights to their own territory as well as to hunt and fish freely within. (41)

In 1749, LeLoutre moved the Mission to the isthmus of Chignecto where he and French soldiers, officers and French settlers established a new settlement. His announcement divided the Shubenacadie Mi'kmaq as some wanted to be close to their religious services

and some did not want to abandon their traditional territory. Jean Baptist Cope chose to stay at Shubenacadie and became the prominent elder and leader. (42)

Since the founding of Halifax, the French have incited the Mi'kmaq to maintain a campaign of hostilities against the new English town and French could be seen with the Mi'kmaq scouting the town prior to Mi'kmaq attacks. The similar continuous attacks on the English network of Block Houses throughout the province confined the English to garrison towns and unable explore or clear land for settlements and cultivation. (33) 1751 saw the construction of the Peninsular Blockhouses and the Peninsular Road. The series of 3 Blockhouses connected by a patrol road extended from the Northwest Arm to the Bedford Basin. The purpose of the Peninsular Blockhouses was to protect the settlers from Mi'kmaq attacks will they cleared and cultivated the land. (39)

There was no direct Mi'kmaq attack against the fortified town of Halifax but rather the Mi'kmaq ambushed stragglers who ventured too far from the fortifications. (43) The fear instilled by the Mi'kmaq attacks severely hampered further development of Halifax and kept the English confined close to fortifications and prevented them from exploring the interior of the province.

In September of 1752, Jean Baptist Cope, then Chief of the Shubenacadie Mi'kmaq and sometimes referred to as Major Cope, arrived with terms for peace which were agreed upon with the English and dated September 15, 1752. Less than 8 months later Cope was involved in the abduction and ransom of an Englishman. (43) A delegation of soldiers left Halifax to meet with Cope and disappeared with the exception of one soldier who was later ransomed back to the English. The returned soldier recounted that Cope had killed all the delegation with the exception of himself through the intervention of an Acadian couple who also arranged his return. He also described how Cope burned his copy of the treaty and boasted his deception for the purpose of making the English vulnerable to surprise attacks. (42) However, Cope's actions may have been in retaliation for the killing of Mi'kmaq women and children in a skirmish between English sailors and Mi'kmaq on the Atlantic Coast. (42) Hostilities continued between the Mi'kmaq and the

English with sporadic Mi'kmaq attacks occurring along the coast to the northeast and southwest of Halifax Harbour which made creating new settlements impractical. (43)

The Mi'kmaq were occupied in helping to build French fortifications at Beausejour and other locations in the Spring of 1754. The French had 3 Mi'kmaq tribes assisting them in their fortifications and committed to side with the French against the English. (33) The English took the opportunity during the lull in hostilities to settle some English out-ports for the fishery. Captain Floyer and a detachment explored the Shubenacadie lakes and river system and found good land and timber. (33) Captain Floyer also mapped the location of the Mission Sainte Ann on the west bank of Shubenacadie River midway between upriver Gays River confluence and The Stewiacke River confluence. Mission Sainte Ann is where LeLoutre continued to use the mission as a staging area for Mi'kmaq attacks on Halifax. (40) The English saw considerable advantage to fortifying the Shubenacadie system to interrupt the Mi'kmaq transportation route and provide security to Dartmouth settles so they may properly cultivate their lands. (33)

The sporadic attacks on the English continued in October of 1756 with French and Mi'kmaq killing Englishmen at the out-ports by laying in-wait in the forest to fire upon work parties and disappear again into the woods. (33)

More Mi'kmaq attacks in 1757 against areas of Eastern Passage and Point Pleasant Park caused the English to consider recalling the settlers and troops from Lawrencetown which they eventually did on August 25, 1757. (33)

Jean Baptist Cope was killed in the spring of 1758 at Point Pleasant Park of today. Mi'kmaq Leaders secretly met to try and come to a consensus on negotiating a peace with the English when an argument broke out among the Mi'kmaq and a short skirmish resulted in 17 Mi'kmaq dead. (44) Jean Baptist Cope was buried at the same location thought to be Father Abbe Thury's burial site at Point Pleasant Park. (45)

## **Post Mi'kmaq and English Hostilities**

News of the fall of Quebec on September 18, 1759 reached the town of Halifax. After 10 years of inciting the Mi'kmaq to hostilities against the English in the province, the French Priest LeLoutre was disowned by the Quebec Bishop and later captured by the English aboard a ship leaving for France. (33) Father Maillard, who had spent 25 years with the Mi'kmaq convinced the Chiefs to go to Halifax and bury the hatchet with the English which finally allowed the English to leave their fortified towns and explore the rest of the province and bring more settlers into the province. (33)

There was still some residual apprehension thereafter on the English side as to if the Mi'kmaq would hold the peace. (33)

Although the Mi'kmaq were beginning to suffer as early as 1758 from years of warfare and diseases, the English remained fearful of the Mi'kmaq, particularly with growing tensions in the New England Colonies. Both the English and the Mi'kmaq were eager to negotiate a peace treaty and the Mi'kmaq were still able to negotiate from a position of strength. The treaties of 1760 did not resolve territorial limits but assured Mi'kmaq access to the natural resources the land had always provided them. (42) However, the land provided less over time as they were displaced from traditional territories and the amount of game available declined. (42)

With the 1760 series of treaty signings with various chiefs of the Mi'kmaq who had gathered on the coast for the purpose of negotiating peace and trade. The English decided to build Truckhouses at each of the existing forts for the exclusive trade with the Mi'kmaq and the first Truckhouse was built at Fort Clearance in Dartmouth. The Shubenacadie lakes and river system were opened up as a transportation route from Halifax to the Bay of Fundy. (33)

There were an estimated total 1500 Mi'kmaq men, women and children within mainland Nova Scotia and Cape Breton Island in 1762. (33) With an increase in tensions in Boston and the Mi'kmaq threat of hostilities diminishing within the province, a decision was



made to recall the troops from Fort Cumberland, Annapolis Royal, Fort Frederick, Fort Amherst, St. John and Louisbourg to concentrate them in Halifax. (33)

Michael Franklin was appointed Superintendent of Indian Affairs and periodically reported and reassured Council in 1777 of the Mi'kmaq tranquility and maintaining the peace while they were being constantly courted by New England Rebels to take up arms against the English. (33) To further ensure the Mi'kmaq remain neutral in the American Revolution, in 1780 the English required that all tribes retreat from the Americas. (33)

As settlers encroached on Mi'kmaq traditional lands, Nova Scotia treaties had guaranteed Mi'kmaq access to the province's natural resources and in 1762 issued a proclamation that there was to be no trespassing on lands claimed by the Indians until the Crown made a decision on the claims. The proclamation was more of a formality with little enforcement. The government did begin to issue licenses to the Mi'kmaq in 1783 for lands they promised to settle. (46)

In the late 1700's the system of Truckhouses went through a series of revisions in financial structure and there were closures as trade with the Mi'kmaq had declined due to mild winters that disrupted traditional hunting and trapping as well as quality of furs. The Mi'kmaq were encouraged to diversify by manufacturing baskets and tool handles but this was not enough to prevent Mi'kmaq petitioning for relief supplies. (46)

Fort Ellis was built in 1761 on the north bank of the confluence of the Stewiacke and Shubenacadie River. It was eventually abandoned in 1767. (18)

The Office of Superintendent of Indian Affairs was established to manage the peace with the Mi'kmaq and later became a conduit of provisions. As the Mi'kmaq suffered hardships from European diseases and depletion of fur and food stocks, the British treaty obligations of providing provisions was later considered charity from the Government's perspective. As the Mi'kmaq threat diminished over time so did the British treaty obligations and provisions were sporadic or had to be petitioned for by the Mi'kmaq. (47)

## Early Road Networks

The early roads of the Province began as Mi'kmaq footpaths slightly improved over time during British settlement of Acadia for horses and later horse-drawn wagon/carriages. A 1755 survey by Captain Lewis of the central portion of the Province shows some of the overland travel routes adjacent rivers and lake chains including the Shubenacadie lakes and river system, the Shubenacadie Mission and an unspecified village (not legible) at the meeting of the Stewiacke River with the Shubenacadie River near Fort Ellis of today. The 1755 map also shows the overland route to Windsor. (48)

One of the first official roads was the road between Halifax and Fort Edward in Windsor (No.1) which followed the western shore of Bedford Basin and along the Sackville River, through Mont Uniacke to Windsor. 1817 Woolford mapping shows there was the beginnings of a road branching east, just past the bridge crossing the Sackville River behind the Barracks (former Fort Sackville) that would eventually become (Trunk.2) Rocky Lake Drive. However, the main road heading east at that time was the Cobequid Road. The Cobequid Road-Windsor Road intersection was at Mile 32 ½ at the same location as the Cobequid Road and Sackville Drive intersection of today. The original Fultz Inn at that time was located on the north corner where the present-day Gas Bar is located. Beyond the intersection, the Windsor Road of 1817 is the Old Sackville Road of today which eventually fell out of favour for the route on the east side of a shallow valley that would become Sackville Drive. (49)

The Cobequid Road of today follows of 1817 the route between First Lake on the west and Rocky Lake to the east and included climbing Beach Hill where carriages had to use the level route west of the hill now known as Settlers Lane. The Cobequid Road had Second Lake and Third Lake of today to the west and The Cobequid Road originally turned northwest just past the route between the two halves of Three Mile Lake. The original route followed the western shore of Lake Thomas crisscrossing Highway 102 until meeting Blue Hill Road of today. The original route of Blue Hill Road meets Fall River Road and further north along present-day Lockview Road and crossing the flowage

at Fletcher Inn located between Fletcher Lake and Lake Thomas near the Fletcher's Lake outlet and present-day Fletcher Lake Lock Trail/Fletcher Drive. The present-day Cobequid Road meets Rocky Lake Road (Trunk 2) on the western side of the flowage between Lake Thomas and a Lake William and crosses at Waverly to become the Waverly Road (Trunk 2). (49)

The 1817 Woolford mapping does not show any right turn after crossing the flowage at Fletcher Inn. The road to Truro (Cobequid) is left and north along present-day Trunk 2 until Holland Road which appears to be the original Route until the 1817 intersection at Kenty Farm which is the present-day three-way intersection of Brookhill Drive, Given Drive and the northern remnants of Holland Road. Brookhill Drive meets the present-day Trunk 2 approximately 325m west of the intersection and opposite the cove east of Laurie Provincial Park. The original Cobequid Road route continued along present-day Given Drive until it turns into a trail today that roughly parallels Trunk 2 until the remnants of the original route meets the present-day Highway 102 approximately 950m south of the Exit 7 overpass. East of Highway 102, the original Cobequid Road route follows the present-day Old Cobequid Road until it meets Oldham Road of today. (49) Later mapping in 1834 shows the beginnings of Trunk 2 along the eastern shore of Fletcher Lake and Shubenacadie Grand Lake but shown incomplete near Halls Bridge (present-day Highway 102). The 1834 mapping shows Holland Road as the more developed route with mile markers but is a +45m climb from Fletchers Lake at 25m to a highpoint of 75m elevation roughly 600m south of the new alignment intersection with Holland Road. The high 75-70m elevation continues along the old Cobequid Road route with some dramatic dips in topography and difficult topography near Oakfield while maintaining a high elevation though to Halls Bridge on the Woolford Mapping. (49) Land Grant Index Mapping shows Holland Road as Truro Road and as a double dashed line rather than a solid line of a main road. (19) The Holland Road route most likely fell out of favour with travellers because of the climb and preferred the longer but more level route along the shores.

The 1834 Mapping shows a road on the eastern shore of Lake Thomas heading north-south which became Waverly Road of today. Approximately mid-shoreline of Lake Thomas' eastern shore road are the beginnings of a road forking off northeast and may be Copperhead Road of today. The beginnings of this new road that would become the Old Guysborough Road of today, climbed the slope diagonally between the lower Lake Thomas and the upper Miller Lake which would be approximately a 30m difference in elevation over approximately 965m horizontal distance. The new road crossed the flowage from Miller Lake to Lake Thomas and followed the western shore of Miller Lake as the same route of Highway 102 of today. The Old Guysborough Road of 1834 crossed east at the northern end of Miller Lake. This section of the original route became Sanctuary Court of today and meets Perrin Drive orientated south-north. (50)

Perrin Drive with long straight alignments joined by large radius curves is a more recent road to the area than the early 1800's Guysborough Road that meandered through the topography. The original Guysborough Road continued through Perrin Drive from Sanctuary Court and both skirted and bridged wetlands south of Oakbank Lane, in a northeastward direction. The section of Perrin Drive between Sanctuary Court and Oakbank Lane may approximate a later rerouting of this section of the Guysborough Road to avoid wet areas of the original route. The Original Guysborough Road continued northeast following the bottom of the southeast slope of a ridge to the north. Perrin Drive officially continues with large radius curves and straight alignments in an approximate northeast-southwest alignment, past the Project Site and meeting Aerotech Drive (Route 212) at Exit 5A. Beyond Aerotech Drive the original Guysborough Road exists as a trail through Aerotech Park between Aerotech Drive and Pratt and Whitney Drive. The section of Old Guysborough Road (Route 212) of today between Pratt and Whitney Drive and Gove Road, approximates the original route until south of the Halifax International Airport which was constructed over the original Guysborough Road route and portions of the original community of Goffs and The Grove.

The Guysborough Road was constructed to provide more direct access for the farmers and communities of the Musquodoboit Valley to markets in Halifax as well as serving

military movement purposes. It is unknown if the Guysborough Road original route towards the Musquodoboit Valley began as a Mi'kmaq footpath. However, the route follows the logical route of least resistance regarding topography and waterbodies. The Mackay 1834 mapping shows the approximate section of the original Guysborough Road adjacent the Project Site and Aerotech Park labelled "Wightman's new Road to Guy"(-sborough). (50)

The 1870's A.F. Church mapping clearly show the Guysborough Road starting intersection with the Waverly Road (Trunk 2) at Lake Thomas as two intersections with Waverly Road. Both intersections are on the southeastern side of the flowage at that time from Miller Lake to Lake Thomas with the more northern intersection with Waverly Road possibly being either Ray's Lane or Miller Lake Road of today. The 1870's A.F. Church mapping shows a possible school house (*C.Sh*) at Miller Lake and a group of homes on both sides of the Miller Lake outlet to Lake Thomas. Much of the upper portions of the 1870's intersecting roads from the Waverly Road (Trunk 2) leading northeast to the Guysborough Road, the original Miller Lake outlet flowage and some residential buildings of that time, are now replaced with present-day Highway 102, Highway 118, Exit 5 and Exit 14 road infrastructure. (51)

Further north along the route, the 1870's A.F. Church mapping shows the drier route of the Guysborough Road between Miller Lake and Parker Lake (Soldier Lake) that would approximate the large radius curve of Perrin Drive of today. The first recorded residence along the Guysborough Road north of Soldier Lake is Mrs. Williams approximately 500m east of the Exit 5A. The 1870's A. F. Church Map shows two hotels intersection of the Guysborough Road and road to Oldham at Goffs. (51)

Goffs place name is derived from two families of Goff, who received grants between in the years 1846-1859 although land grants began along the Guysborough Road at Goffs as early as 1821. Oldham was named by Joe Howe after his ancestor's birthplace in England. Gold was discovered at Oldham in 1861 and mining began in 1862. (18)

The 1870's A.F. Church mapping shows Kently (Kenty) family still at the intersection of the Cobequid Road and minor road leading west to the shoreline as shown in the 1817 and 1834 mapping. However, the 1870 mapping shows the original Cobequid discontinued beyond this intersection and turning west to join the more travelled Trunk 2. The intersection at Grand Lake Station also had a Hotel and the A. F. Church shows the Nova Scotia R. R. line passing through opposite the new alignment intersection at Wellington Station. The railroad was built in 1856 as the Intercolonial Railroad. (18) The 1870's mapping shows the area as Beaver Bank Station and nothing between Holland Road (originally Cobequid Road) and the Guysborough Road of that time. (51)

The Nova Scotia Official Highway Maps of 1935, shows the Guysborough Road from Lake Thomas to Elderbank. The map also a road from the intersection on the Guysborough Road at Goffs, travels north through Oldham to meet Trunk 2 just south of Enfield. These roads were previously classified as "Local Highway" in the 1935 version of the Nova Scotia Official Highway Maps and as "Other Roads" in later 1936 and 1938 versions. The 1944 Nova Scotia Official Highway Map eliminated these roads along with the place names of Goffs and Oldham from the map. In all of the above versions of the early highway mapping, Trunk 2 was shown as the main highway between Halifax and Truro at those times (52)

The nearest Reserve parcel is Shubenacadie I. R. 13, located on the northwestern shore of Shubenacadie Grand Lake, centered approximately 8 km north of the New Alignment intersection with Highway No.2 at Wellington Station. Shubenacadie I. R. 13 is the land of the Sipekne'katik First Nation community located at Indian Brook I. R. 14, 26.5 km north-northeast of the Exit 5A.

A review of current status of any claims filed with Crown-Indigenous Relations and Northern Affairs Canada shows no current claims within the Project Site and Study Area. (53)

#### **4.4 Mi'kmaq Traditional Use Findings**

The traditional use data gathered for this MEKS was drawn from one primary source: interviews with Mi'kmaq individuals who reside in the surrounding Mi'kmaq communities and those who are familiar with or undertake these types of activities. This data was acquired through interviews with informants that allowed the study team to identify the various traditional use activities, resources and areas that are currently or have been used by the Mi'kmaq, and any information that was gathered in previous MEKS in the area. Informants were asked to identify areas within the Study Area and Project Site where they knew of traditional use that had taken place, or currently in use. These interviews took place in November and December, 2018. Information collected during previous studies was also incorporated into the information gathered.

To easily identify the traditional use data findings of this study, the analysis has been broken down into two groups. The first is the Project Site analysis, and the second is the Study Area.

Unless otherwise stated, areas identified by informants are considered to be utilized by the Mi'kmaq currently, in the recent past, and/or the historic past.

##### **Project Site**

The Project Site, as well as locations in the *immediate* vicinity (within 50 meters) of the Project Site, will be considered when analyzing traditional use activities.

##### **Fishing**

On the western portion of the proposed development, near Wellington Station, there were reportedly some trout, bass, chain pickerel, and smelt fishing activities occurring. Two areas of trout fishing, and two areas of bass fishing were identified. (see Appendix B, map “Aerotech Connector MEKS – Mi'kmaq Traditional and Current Fishing Areas”)

## **Hunting**

No hunting areas were identified by informants in the Project Site (see Appendix C, map “Aerotech Connector MEKS – Mi’kmaq Traditional and Current Hunting Areas”).

## **Gathering**

No gathering areas were identified by informants in the Project Site (see Appendix D, map “Aerotech Connector MEKS – Mi’kmaq Traditional and Current Gathering Areas”).

## **Study Area**

As mentioned previously, the MEKS data is also drawn from the Study Area. The purpose of this portion of the study is to portray other land characteristics and land use activities that may have been missed in a narrow Project Site data analysis.

## **Fishing**

From the data gathered, this study found that bass and trout were/are the most reported fishing activity by the informants in the Study Area. (see Appendix B, map “Aerotech Connector MEKS – Mi’kmaq Traditional and Current Fishing Areas”)

Thirty six (36) bass fishing areas (including striped bass, rock bass and smallmouth bass) were found to be located:

- Shubenacadie Grand Lake
- Fletchers Lake
- Miller Lake
- Soldier Lake
- Lake Thomas



Twenty two (22) trout fishing areas were found to be located:

- Shubenacadie Grand Lake
- Fletchers Lake to Lake Thomas
- Miller Lake

Other species fished in the Study Area are chain pickerel (3 areas), smelt (3 areas), gaspereau (3 areas), smelt (3 areas), salmon (1 area), and shad (1 area).

When analyzing timelines for fishing activities, current use activities were reported the most out of all the fishing use with approximately fifty four percent (~54%) of data collected as being utilized within the last 10 years. Historic Use accounted for approximately twenty four percent (~24%) of the information. Recent Past use accounted for about twenty two percent (~22%) of the information.

## **Hunting**

(see Appendix C, map “Aerotech Connector MEKS – Mi’kmaq Traditional and Current Hunting Areas”)

One deer hunting area was identified from Bennery Lake through to Kelly Long Lake. This area has been identified as a Current Use hunting area.

## **Gathering**

Various plant species were found to be harvested in the area. Blueberries were identified in two areas, cranberries in two areas, mayflowers in two areas and sweet grass was identified in one area. (see Appendix D, map “Aerotech Connector MEKS – Mi’kmaq Traditional and Current Gathering Areas”)Also identified were Historic Use gathering areas for medicines and wood.

These areas were found to be located along the shores of Shubenacadie Grand Lake, by the airport north west of Goffs, and between Bennery Lake and Highway 102.

### **Other Information**

During the interviews, informants were given the opportunity to describe any other information they felt would be considered a culturally significant area, or information about an area. Generally, this is where informants would describe, for example, areas of past settlements, migration routes, culturally significant areas, or places with ties to legends, as well voice any concerns they might have towards a particular area or towards this specific project.

Many informants described using Shubenacadie Grand Lake for various activities, namely canoeing, swimming, and gathering areas.

### ***4.5 Mi'kmaq Significant Species Process***

In order to identify possible project activities which may be of significance to the Mi'kmaq with regards to traditional use of the Study Area, the project team undertakes a number of steps in order to properly consider the MEKS data. This involves three main components: Type of Use, Availability, and Importance.

#### **Type of Use**

The first component of analysis is the “Type of Use” of the resource which involves the categorization of the resource. All resources are placed into various general categories regarding the Type of Use. The category headings are Medicinal/Ceremonial, Food/Sustenance, and Tool/Art. These general headings are used so as to ensure further confidentiality with respect to the resources and the area where they are harvested. As well, the total number of instances where a resource harvest has been documented by the study is quantified here as well.

## **Availability**

After the data is considered by the Type of Use, it is considered in accordance with its availability. This involves considering whether the resource is abundant in the Study Area or whether it is rare or scarce. Based on the information that is provided to the team from the ecological knowledge holders and/or written literature sources, the availability of the resource is then measured in regards to other water or land areas that are outside of the Study Area. This measuring is primarily done in the context of the areas adjacent to the Study Area, and if required, other areas throughout the province. By proceeding in this manner, the study can provide an opinion on whether that resource may be **Rare**, **Scarce** or **Abundant**.

The data is classified in accordance with following:

**Rare** – only known to be found in a minimum of areas, may also be on the species at risk or endangered plants list;

**Common** – known to be available in a number of areas; and

**Abundant** – easily found throughout the Study Area or in other areas in the vicinity.

This allows the study team to identify the potential impact of a resource being destroyed, by the proposed project activities, will affect the traditional use activity being undertaken.

## **Importance**

The final factor the MEKS team considers when attempting to identify the significance of a resource to Mi'kmaq use is whether the resource is of major importance to Mi'kmaq traditional use activities. This can be a somewhat subjective process, as any traditional resource use will be of importance to the individual who is acquiring it, regardless of whether its use is for food or art, and regardless if the resource is scarce or abundant.

However, to further identify the importance, the MEKS team also considers the frequency of its use by the Mi'kmaq; whether the resource is commonly used by more than one individual, the perceived importance to the Mi'kmaq in the area, and finally the actual use itself. These factors support the broad analysis of many issues in formulating an opinion on significance and supports identifying whether the loss of a resource will be

a significant issue to future Mi'kmaq traditional use, if it is impacted by the project activities.

#### ***4.6 Mi'kmaq Significance Species Findings***

This MEKS identified resource and land/water use areas within the Project Site and Study Area that continue to be utilized by the Mi'kmaq people, to varying degrees.

##### **Type of Use**

The study identified the following in the Study Area:

<b>TYPE OF USE</b>	<b>NUMBER OF AREAS</b>	<b>NUMBER OF SPECIES</b>
<b>Food/Sustenance</b>	77	14
<b>Medicinal/Ceremonial</b>	6	4
<b>Tools/Art</b>	6	4

*Table 5. Resource Use within all Study Area*

##### **Availability**

During the information gathering for the Study Area, informants had mentioned the fishing for salmon. The Atlantic Salmon is considered an endangered species in Canada. (55)

While the striped bass has no listed status with the Nova Scotia species registry, the federal species at risk registry consider the Gulf of St. Lawrence population of Striped Bass to be of special concern (56)

No other rare or endangered species were identified by informants.

## **Importance**

While stated above, it is worth noting again that assigning an importance designation for any activity done by Mi'kmaq can be a subjective process, and that all activities are considered ways of preserving the Mi'kmaq way of life, in some shape or form. Scarcity and abundance of a species in an area can both increase the importance of a species.

As noted previously, Atlantic Salmon, and Striped Bass are considered an endangered, threatened, or species of special concern in Canada and the Mi'kmaq still rely on these species for sustenance and cultural ceremonies. Any disturbances to their habitats could have an impact on Mi'kmaq use.

Based upon the high frequency of activities reported by the informants, bass and trout fishing are considered to be the favored activity for Mi'kmaq in this particular area.

## **5.0 CONCLUSIONS**

This Mi'kmaq Ecological Knowledge Study has gathered, documented and analyzed the traditional use activities that have been occurring in the Project Site and the Study Area by undertaking interviews with individuals who practice traditional use, or know of traditional use activities within these areas and reside in the nearby Mi'kmaq communities.

The information gathered was then considered in regards to species, location, use, availability and frequency of use to further understand the traditional use relationship that the Mi'kmaq maintain within the Project Site and Study Area.

### **Historic Review Summary**

Overland travel routes established by early peoples made the best use of the topography between coasts and were logical paths of least resistance between departure locations and

destinations. The Chain of interconnected lakes and river systems of the Shubenacadie River System was an important travel route crossing the central portion of province mainland roughly in a southwest to northeast direction.

These early trail routes eventually became roads during the historic British settlement in Nova Scotia. The trail to Pisaquid (Windsor) eventually became Trunk 1 and the Shubenacadie system of lakes, rivers and valleys eventually became Trunk 2 to Cobequid (Truro). It is unknown if the Old Guysborough Road was originally a traditional travel route for early peoples to the Musquodoboit Valley.

There are several known pre-contact archaeological sites/finds within the Study Area with the nearest 500m west of the new alignment intersection with Trunk 2 at Wellington Station. The archaeological period of the sites was determined to be Archaic, Early-Middle Archaic to Ceramic Period. The artifact stone materials found are available within the Study Area and Project Site providing the bedrock is exposed for discovery and extraction by early peoples.

Other features found within the Study Area include a “15 ft. Fall” and “Gorge” watercourse emptying into Soldier Lake on the northeastern shore. The Quartzite Barrens landscape and wetlands also provide support for a variety of plants (Blueberries) and wildlife important to early peoples

The Project Site and Study Area are within the Traditional Mi'kmaq Territory of Eskikewa'kik. Eskikewa'kik includes all lands and waters draining into the Atlantic from St. Margarets Bay including Big Indian Lake, Chebucto (Halifax), Eastern Shore, Strait of Canso to Cape Blue on St. Georges Bay. The District includes the entire Musquodoboit River watershed, a portion of the Shubenacadie River to and including the Stewiacke River watershed draining into Cobequid Bay. In addition, Eskikewa'kik includes the West St. Marys River watershed, East St. Marys River watershed, Country Harbour River watershed as well as the Salmon River and Milford Haven River watersheds draining into Chedabucto Bay.

There are no last known Traditional Hunting Territories near the Project Site. The closest territories are east and inland of the Eastern Shore at Musquodoboit Harbour and others west of the Project Site inland from St. Margarets Bay and Mahone Bay.

During the mid to late 1700's, there were hostilities between the Mi'kmaq and British. The Shubenacadie lakes and river systems provided Mi'kmaq access to attacks on the new settlement at Halifax Harbour as well as an inland refuge from British patrols and counter attacks. The constant threat of attacks by the Mi'kmaq kept the British confined to the Halifax Harbour area and large portions of the Province remained unknown to the British at that time.

As Trunk 2 eventually became the preferred route between Halifax and Truro, the section of Old Guysborough Road from Lake Thomas to Goffs fell out of favor with travelers as did the Cobequid Road from Fletchers Lake to Oldham Road. The Construction of Highways 102 and 118 destroyed Lake Thomas and Miller Lake Sections of the Guysborough Road and cut off access to the Miller Lake to Goffs sections of the original road until construction of Perrin Drive and Exit 5A on Highway 102.

The nearest Indian Reserve (I.R.) parcel is Shubenacadie I. R. 13, located on the northwestern shore of Shubenacadie Grand Lake, approximately 8 km north-northwest of the Project Site. Shubenacadie I.R. 13 is the land of the Sipekne'katik First Nation community located at Indian Brook I.R. 14, 26.5 km north-northeast of the Project Site.

A review of current status of any claims filed with Crown-Indigenous Relations and Northern Affairs Canada shows no current claims within the Project Site and Study Area.

### **Traditional Use - Project Site Summary**

Based on the data documented and analyzed, it was concluded that there is no Mi'kmaq use reported on the Project Site, or in the immediate vicinity.

## **Traditional Use - Study Area Summary**

Bass and trout fishing were the most commonly reported activity by informants within the Study Area. Overall, the majority of activities took place in what this report categorizes as the Current Use timeline. There are enough current use activities occurring in the area to suggest concurrent use throughout all three timelines.

## **Other Information**

A few informants had described utilizing the Shubenacadie Grand Lake for activities such as canoeing, swimming, fishing and gathering medicines. This water system is an important part to the Mi'kmaq in this area as there are many historical activities tied to it.

## **Recommendations**

*Based on the information gathered and presented in this report, there is a potential this project could affect Mi'kmaq traditional use in both the Project and Study Areas. Although the possible effects of the project could be minimal, considering the number of traditional use activities and the overall size of the proposed project, it is recommended that dialog be initiated with the Assembly of Nova Scotia Mi'kmaq Chiefs, Sipekne'katik, and Millbrook, and that traditional use activities of the Mi'kmaq be reflected upon in the overall environmental presentation.*



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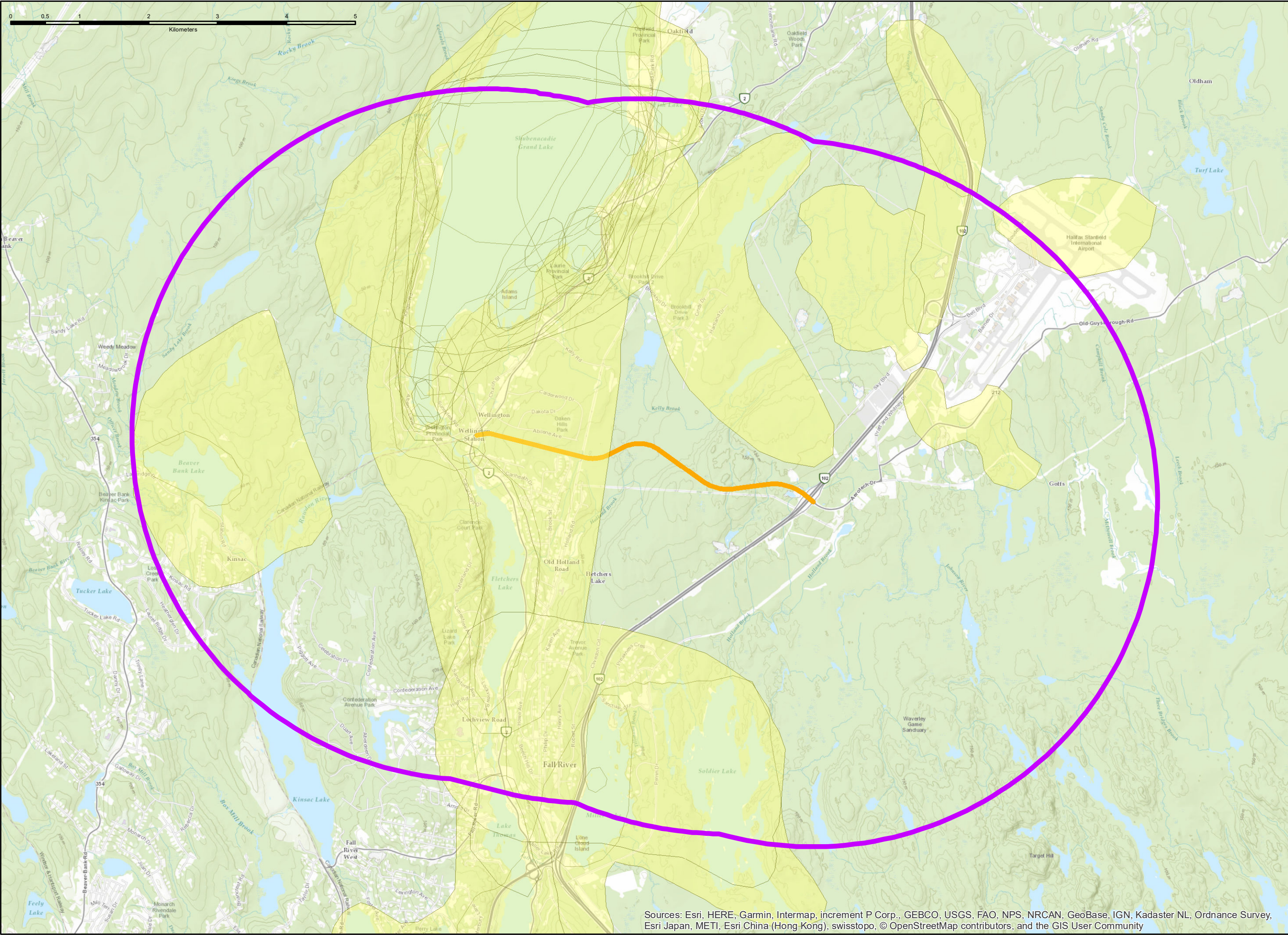
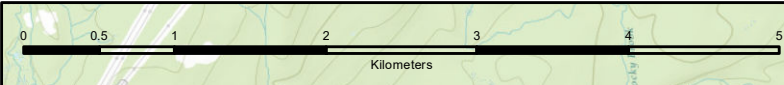
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Map A  
Mi'kmaq Traditional and Current Use Areas





# Aerotech Connector MEKS

## Mi'kmaq Traditional and Current Use Areas



- Legend**
- Traditional Use Areas
  - Project Site
  - Study Area

**Disclaimer**

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The Mi'kmaq ecological knowledge data presented is a sampling of knowledge held by those interviewed and should not be interpreted as an absolute measure of Mi'kmaq ecological knowledge and land use.



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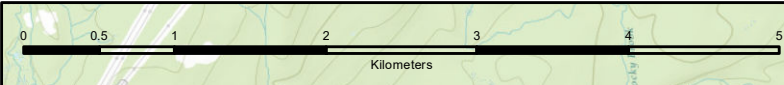
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Map B  
Mi'kmaq Traditional and Current Fishing Areas





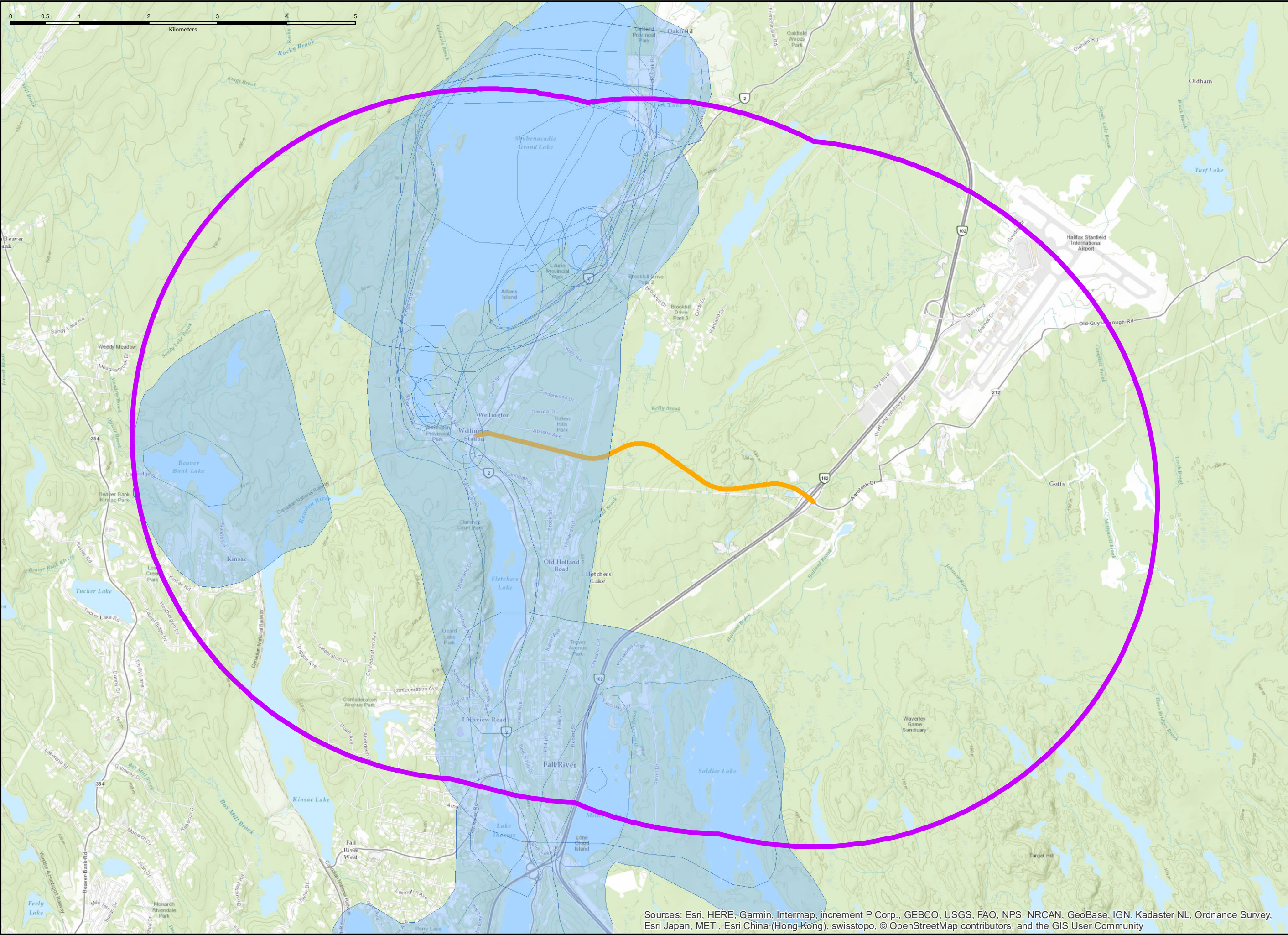
# Aerotech Connector MEKS

## Mi'kmaq Traditional and Current Fishing Areas



### Legend

- Fishing Areas
- Project Site
- Study Area



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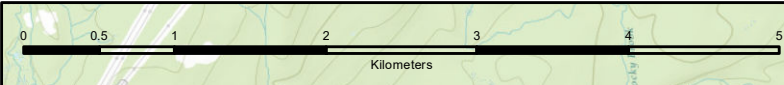




Map C

Mi'kmaq Traditional and Current Hunting Areas





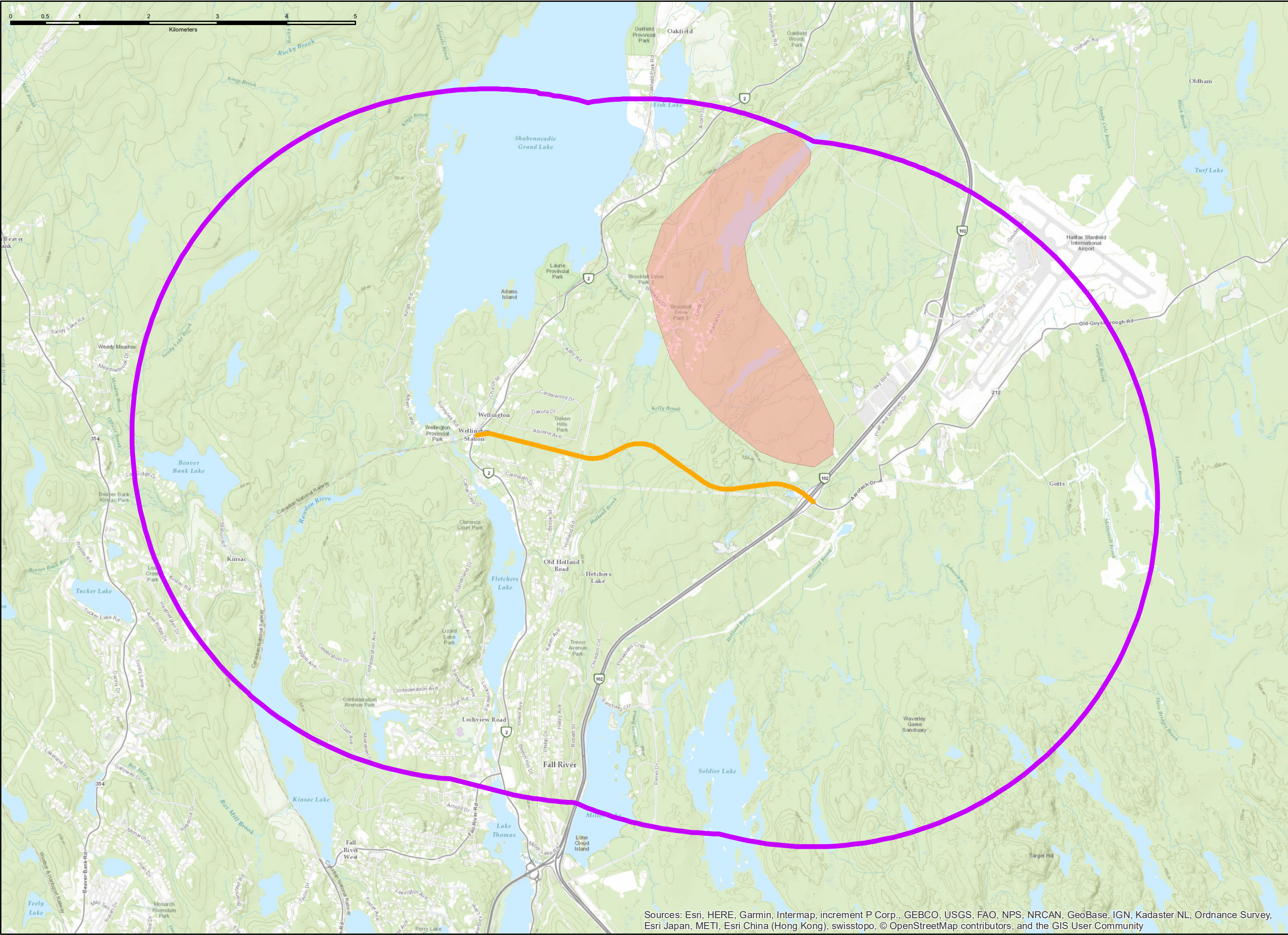
# Aerotech Connector MEKS

Mi'kmaq Traditional and Current Hunting Areas



**Legend**

- Hunting Areas
- Project Site
- Study Area



**Disclaimer**

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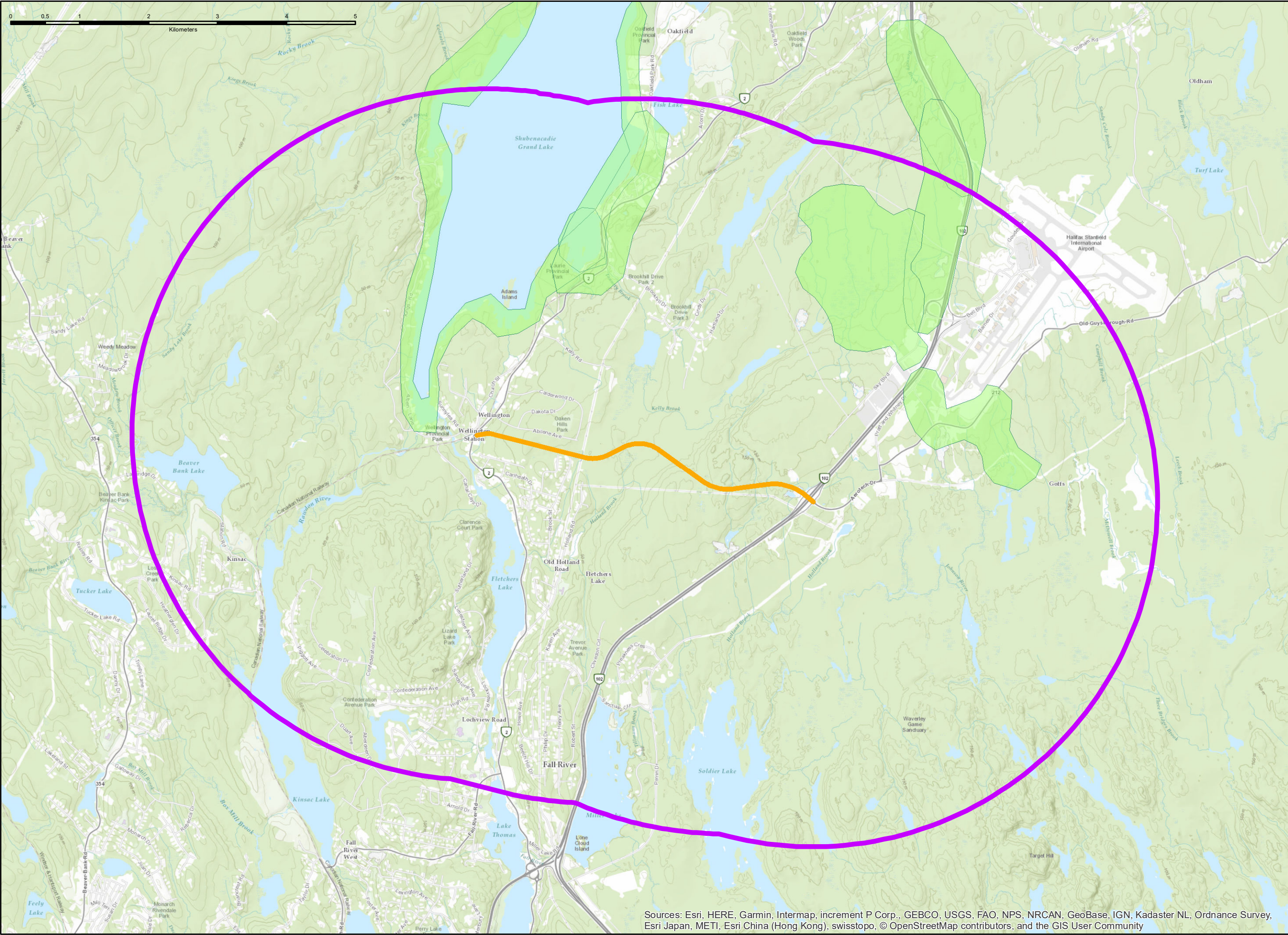
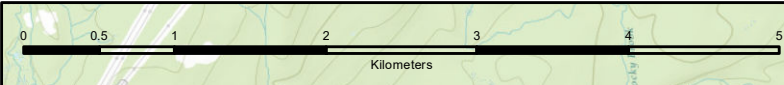
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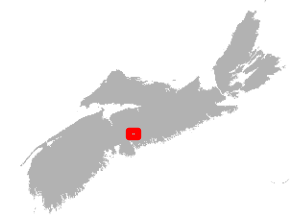
Map D  
Mi'kmaq Traditional and Current Gathering  
Areas





# Aerotech Connector MEKS

## Mi'kmaq Traditional and Current Gathering Areas



- Legend**
- Gathering Areas
  - Project Site
  - Study Area

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