

APPENDIX E
CULTURAL RESOURCE MANAGEMENT REPORT
(Cultural Resource Management Group Limited, 2020)

Environmental Assessment Registration Document:
Whycocomagh Quarry Expansion
Stewartdale, Municipality of the County of Inverness
Nova Scotia

**WHYCOCOMAGH QUARRY EXPANSION
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020
INVERNESS COUNTY, NOVA SCOTIA**

FINAL REPORT

Submitted to:
Dexter Construction Company Limited
and the
Special Places Program of the
Nova Scotia Department of Communities, Culture, and Heritage

Prepared by:
Cultural Resource Management Limited
Ten Mile House
1519 Bedford Highway
Bedford, Nova Scotia
B4A 1E3

Consulting Archaeologist: Sarah Ingram
Report Preparation: Sarah Ingram & Shawn MacSween

Heritage Research Permit Number: A2020NS110
CRM Group Project Number: 20-0017-01

DECEMBER 2020



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Consequently, the report must not be published or made public without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

EXECUTIVE SUMMARY

Cultural Resource Management Group Limited (CRM Group) was retained by Dexter Construction Company Limited (Dexter) to undertake an Archaeological Resource Impact Assessment (ARIA) as a part of the proposed expansion to the Whycocomagh Quarry near Whycocomagh, Inverness County. Involving background research, Mi'kmaw engagement, and field reconnaissance, the project was designed to identify, document, interpret, and make management recommendations for potential cultural resources within the proposed impact area.

The ARIA was conducted by CRM Group Archaeologist, Sarah Ingram, with the assistance of CRM Group Archaeologist, Kiersten Green, according to the terms of Heritage Research Permit A2020NS110 (Category 'C'), issued to Ingram through the Special Places Program of the Nova Scotia Department of Communities, Culture and Heritage (Special Places). This report describes the ARIA of the Whycocomagh Quarry expansion study area, presents the results of these efforts, and offers cultural resource management recommendations.

Based on the background research and field reconnaissance, the area has been ascribed low potential for encountering archaeological resources. This ascription is based on previous quarrying activities, sloped topography, and lack of access to water sources. It is recommended that the proposed impact area be cleared of the need for further archaeological investigation. Should ground disturbance extend beyond the current proposed impact area as addressed in this report, further archaeological assessment is to be conducted.

PROJECT PERSONNEL

Principal Investigator:	Sarah J. Ingram, MA, RPA
Project Management:	Kyle G. Cigolotti, BA
Assistant Archaeologist:	Kiersten A. Green, BA
Report Preparation:	Sarah J. Ingram, MA, RPA <i>Author</i>
	Shawn A. MacSween, BA <i>GIS/Drafting</i>
	Robert H. J. Shears, MA, RPA <i>Technical Review</i>
	Shannon Stevenson <i>Office Manager</i>

ACKNOWLEDGEMENTS

Special Places Program of the Nova Scotia Department of Communities, Culture, and Heritage	John Cormier, BA <i>Special Places Coordinator</i>
	Anna Cross <i>Assistant Special Places Coordinator</i>
Nova Scotia Museum	Catherine Cottreau-Robins, PHD <i>Curator of Archaeology</i>
	Vanessa Smith, MA <i>Assistant Curator of Archaeology</i>
Kwilmu'kw Maw-klusuaqn Archaeological Research Division	Heather McLeod-Leslie, PHD, PCP <i>Senior Archaeologist</i>
	Kait MacLean, MA <i>Staff Archaeologist</i>
Department of Natural Resources Library	Tracy Lenfesty <i>Librarian</i>

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	STUDY AREA.....	2
3.0	METHODOLOGY.....	6
3.1	Background Study.....	6
3.2	Mi'kmaw Engagement.....	6
3.3	Archaeological Reconnaissance.....	6
4.0	RESULTS.....	8
4.1	Background Study.....	8
4.2	Field Reconnaissance.....	22
5.0	CONCLUSIONS AND RECOMMENDATIONS.....	30
6.0	REFERENCES CITED.....	31

LIST OF FIGURES

Figure 1: Approximate Study Area.....	3
Figure 2: Detailed Study Area.....	4
Figure 3: Technical Mapping.....	5
Figure 4: Hillshade LiDAR Digital Elevation Model.....	11
Figure 5: Crown Land Index Sheet No. 116.....	15
Figure 6: Geologic and Natural History Survey, 1884.....	16
Figure 7: Inverness County, A.F. Church, 1884.....	17
Figure 8: Aerial Photographs, 1939, 1969, and 2020.....	20
Figure 9: Previously Identified Cultural Features.....	21
Figure 10: Tracklog and Photo Directions.....	23

LIST OF PLATES

Plate 1: View of Whycocomagh Bay from the Whycocomagh Quarry access road, facing southeast. October 22, 2020.....	2
Plate 2: Multibeam coverage of the Bras d'Or Lakes; Inset: Basin sills (in red) within Whycocomagh Bay (Parker, et. al. 2007:14).....	9
Plate 3: Map showing the Whycocomagh Reserve. Thomas Crawley, Surveyor General of Cape Breton, 1833.....	13
Plate 4: Maclean United Church undergoing repairs in the early 1900s.....	18
Plate 5: Archway entrance to the Whycocomagh Pioneer Memorial.....	18
Plate 6: The active portion of the Whycocomagh Quarry, facing east. October 22, 2020.....	24
Plate 7: Buildup of material adjacent to the active quarry, facing northwest. October 22, 2020.....	24
Plate 8: Sloped area in northern portion of study area, facing north. October 22, 2020.....	25
Plate 9: Upward slope within the northern portion of the study area, facing south. October 22, 2020.....	25
Plate 10: Access roadway circling through the northern portion of the study area, facing west. October 22, 2020.....	26
Plate 11: Buildup of material around the active quarry, facing south. October 22, 2020.....	26
Plate 12: Slope leading towards the western edge of the study area, facing west October 22, 2020.....	27
Plate 13: Ravine along the southern boundary of the study area, facing southeast. October 22, 2020.....	27
Plate 14: Sloping within the southern portion of the study area, facing south. October 22, 2020.....	28
Plate 15: Upward slope towards the active portion of the Whycocomagh Quarry, facing north. October 22, 2020.....	28
Plate 16: Roadway within the southern portion of the study area, facing east. October 22, 2020.....	29
Plate 17: Sloping in the southeastern portion of the study area, facing south. October 22, 2020.....	29

DEXTER WHYCOCOMAGH QUARRY EXPANSION ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020 INVERNESS COUNTY, NOVA SCOTIA

1.0 INTRODUCTION

Dexter Construction Company Ltd. (Dexter) is proposing to expand its existing quarry near the community of Whycocomagh, Inverness County. In order to investigate the potential for encountering archaeological resources during any development of the property, Cultural Resource Management Group Ltd. (CRM Group) was retained by Dexter to undertake an Archaeological Resource Impact Assessment (ARIA) of the proposed project area. Involving Mi'kmaw engagement, background research, and field reconnaissance, the project was designed to identify, document, interpret, and make management recommendations for potential cultural resources within the proposed impact area.

The ARIA was directed by CRM Group Archaeologist, Sarah Ingram, with assistance during the field reconnaissance by CRM Group Archaeologist, Kiersten Green. The ARIA was conducted according to the terms of Heritage Research Permit A2020NS110 (Category 'C'), issued to Ingram through the Special Places Program of the Nova Scotia Department of Communities, Culture and Heritage (Special Places). This report describes the archaeological screening and reconnaissance of Dexter's proposed Whycocomagh Quarry Expansion study area, presents the results of these efforts, and offers cultural resource management recommendations.

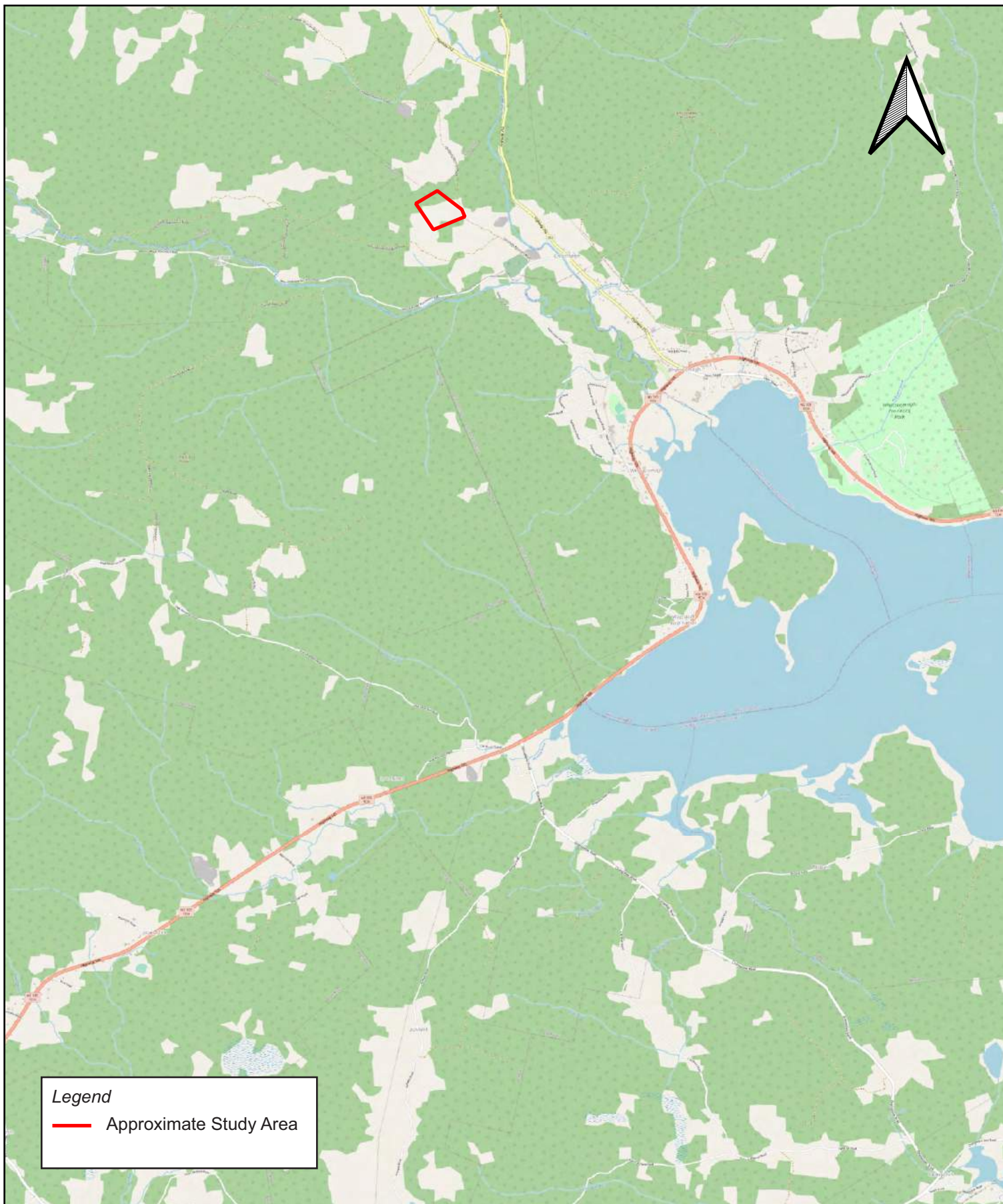
2.0 STUDY AREA

The Whycocomagh Quarry study area is located in Inverness County, 2.4 kilometres northwest of We'koqma'q First Nation and Whycocomagh Bay on Cape Breton Island (**Figure 1**). The study area is situated west of Route 252 and is accessible via Chuggin Road, north of the Roseburn Road, west of the Whycocomagh Port Hood Road. The survey addressed a single property (PID 50209980), with a proposed impact area of approximately 10 hectares, including the existing quarry (**Figures 1 - 3; Plate 1**).

A previous ARIA was conducted by CRM Group in May 2020 which included a study area surrounding an adjacent property and quarry (A2020NS013); portions of the current study area were included in that assessment and this report draws on elements of the previous report.




Plate 1: View of Whycocomagh Bay from the Whycocomagh Quarry access road, facing southeast. October 22, 2020.





Legend

— Study Area

	<i>Detailed Study Area</i>	<i>Figure 2</i>
	DEXTER WHYCOCOMAGH QUARRY EXPANSION ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020 INVERNESS COUNTY, NOVA SCOTIA	December 2020
		Scale Bar



WHYCOCOMAUGH QUARRY
EA Study Area
Imagery June 4, 2019

PID 50107614
JANET BINGHAM



PID 50209980
MUNICIPAL ENTERPRISES LTD.

EA STUDY AREA
APPROX. 10 HECTARES

CHUBBY ROAD

PID 50108729
NOVA CONSTRUCTION CO. LTD.

PID 50107184
ALVA CONSTRUCTION LTD.



Technical Mapping

Figure 3

DEXTER WHYCOCOMAGH QUARRY EXPANSION
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020
INVERNESS COUNTY, NOVA SCOTIA

December 2020

Scale Bar



3.0 METHODOLOGY

In keeping with Nova Scotia's *Special Places Protection Act Heritage Research Guidelines* for Category C Permits, this stage of the ARIA consisted of three components: background study; Mi'kmaw engagement; and archaeological reconnaissance.

3.1 Background Study

The archival research component of the ARIA was designed to explore the land use history of the study area and provide information necessary to evaluate the area's potential for encountering archaeological resources. To achieve these goals, CRM Group utilized the resources of various institutions including the Nova Scotia Archives, the Nova Scotia Museum, the Department of Natural Resources Library, and the Nova Scotia Crown Land Information Centre.

The background study also included a review of the Maritime Archaeological Resource Inventory (MARI) to identify both registered and reported archaeological sites in the vicinity of the study area. In addition, contact was made with other individuals and organizations having knowledge of potential historical, archaeological, or architectural resources within the study area.

Topographic maps and aerial photographs, both current and historic, were also used in conjunction with LiDAR Digital Elevation Models (DEM) to evaluate the study area. The information obtained from this suite of research materials facilitated the interpretation of features encountered within the study area during the reconnaissance.

Due to the ongoing COVID-19 pandemic, access to some of the above research repositories was limited. Where possible, information requests were submitted and received digitally.

3.2 Mi'kmaw Engagement

As part of the study, CRM Group contacted the Kwikmu'kw Maw-klusuaqn Negotiation Office's Archaeological Research Division (KMKNO-ARD) with a knowledge request for research and fieldwork guidance, and to receive KMKNO's summary of information pertaining to past or traditional Mi'kmaw use of the study area. Similarly, as the study area is within We'koqma'q and Wagmatcook traditional territory, a request was also made with We'koqma'q First Nation and Wagmatcook First Nation.

This information provided would also help CRM Group conduct background research with a multitemporal approach that considered the diversity of views witnessed and experienced by a broad range of representative groups. The knowledge gained was used to broaden archival research to better understand the cultural and archaeological importance of the land upon which the study area is located.

3.3 Archaeological Reconnaissance

The goals of the archaeological field reconnaissance were to conduct a visual inspection of the study area, document any areas of archaeological sensitivity or archaeological sites identified during either the background study or the visual inspection, and design a strategy for testing areas of archaeological potential, as well as any archaeological resources identified within the study area. Although the ground search did not involve sub-surface testing, the researchers were watchful for topographic or vegetative anomalies that might indicate the presence of buried archaeological resources. The members of the reconnaissance team generally walked about 10 to 30 metres apart, searching the ground surface for signs of historic land use (e.g. levelled ground, anomalous mounds or depressions, structural features and vestige populations of domestic plants, as well as Culturally Modified Trees) and the presence of environmental conditions recognized as being conducive to past settlement – relatively flat, dry land close to transportation routes such as waterways, portage routes or early roads. Soil exposures within road-cuts and at the base of uprooted trees, were searched for artifacts and traces of archaeological features. Prominent stone faces, whether on

bedrock outcrops or exposed boulders, were searched for petroglyphs. Field geomatic data was recorded with handheld Garmin GPSmap 62s with +/- five-metre accuracy. Field observations were recorded through the combination of photographs, field sketches, and field notes.

4.0 RESULTS

4.1 Background Study

The following discussion details the environmental and cultural setting of the Dexter Whycocomagh Quarry Expansion study area and environs, including previous archaeological research conducted in the vicinity of the study area. The background study provides a foundation for subsequent aspects of the maintenance and/or development of the property.

4.1.1 Environmental Setting

Several environmental factors such as glacial history, water sources, topography, soil types, and vegetation have influenced settlement patterns and contribute to the archaeological potential of the area. The study area is located towards the southern extent of the greater ecological region known as the *Nova Scotia Uplands – Inverness Lowlands* ecodistrict. The *Inverness Lowlands* stretches from Pollets Cove in the north to Mull River and Whycocomagh Bay in the south (Keys et al. 2017: 75; unit 320).

Glaciation

During the earliest phase of the Late Wisconsinan ice flow (~20,000 years BP), much of northeastern North America was covered in the Laurentide Ice Sheet and inundated by over 300 metres of water. Deglaciation began in the Gulf of Maine approximately 21,000 years BP and progressed across the continental shelf, with the last ice remaining on the eastern Scotian Shelf. Ice streams drained vast areas of the Laurentide Ice Sheet, and it was along these ice streams that ice calving occurred. Cosmogenic dating shows that the area around Peggy's Cove, near Halifax, was ice-free by approximately 14,000 years BP (Shaw 2006: 2069-2071). In part due to their great depths, ice retreated quickly out of the Gulf of Maine and the Bay of Fundy. By 13,000 years BP much of the coastal region of the Bay of Fundy was free of glacial ice. At this time glaciers were largely land-bound, including an isolated ice mass overlying Nova Scotia (Scotian Ice Divide) (Fader 2005: 5). Reduction on land continued through melting and climatic conditions rather than calving (Shaw 2006: 2076). Generally, by 6,000 BP the geographical setting of the Atlantic region was similar to conditions experienced today. As sea levels rose - reaching within 5m of their present depth off the Atlantic coast by 3,000 BP - the Northumberland Strait was inundated and what is now Prince Edward Island was isolated from the mainland (Shaw 2002: 1872).

Formation of the Bras d'Or Lake occurred as a result of glacial retreat approximately 10,000 BP. At that time, the lakes were smaller and connected by rivers with the entrance to the lakes being blocked by a sill. Paleo lakes drained by a river, occupying St Patrick's Channel, could be found south of the study area in Whycocomagh Bay; a larger lake immediately west of Little Narrows, and small lake just south of Whycocomagh. Between 10,000 to 9,000 BP sea level had risen to the point where the ocean broke through to the lakes. Subsequent sea level drop returned them to a freshwater state until approximately 4,000 to 5,000 BP, when once again sea level rise flooded these freshwater lakes with seawater. As a result of further rise in sea level, the lakes grew in size and became salinated enough to support marine life which invaded from the outside ocean (Shaw 2002: 144).

Multibeam bathymetry of the Brad d'Or Lakes has highlighted the relatively complex geometry of the Whycocomagh Bay in comparison with other small basins in the lake system. The bay displays both deep and shallow characteristics, with a pair of deep basins of 38 and 46 metres deep. These two basins are separated by a sill at a depth of seven metres. The whole of Whycocomagh Bay is further separated to the east from the remainder of St. Patricks Channel by another sill, less than 12 metres deep, at Little Narrows (Parker, et. al. 2007:9) (**Plate 2**).

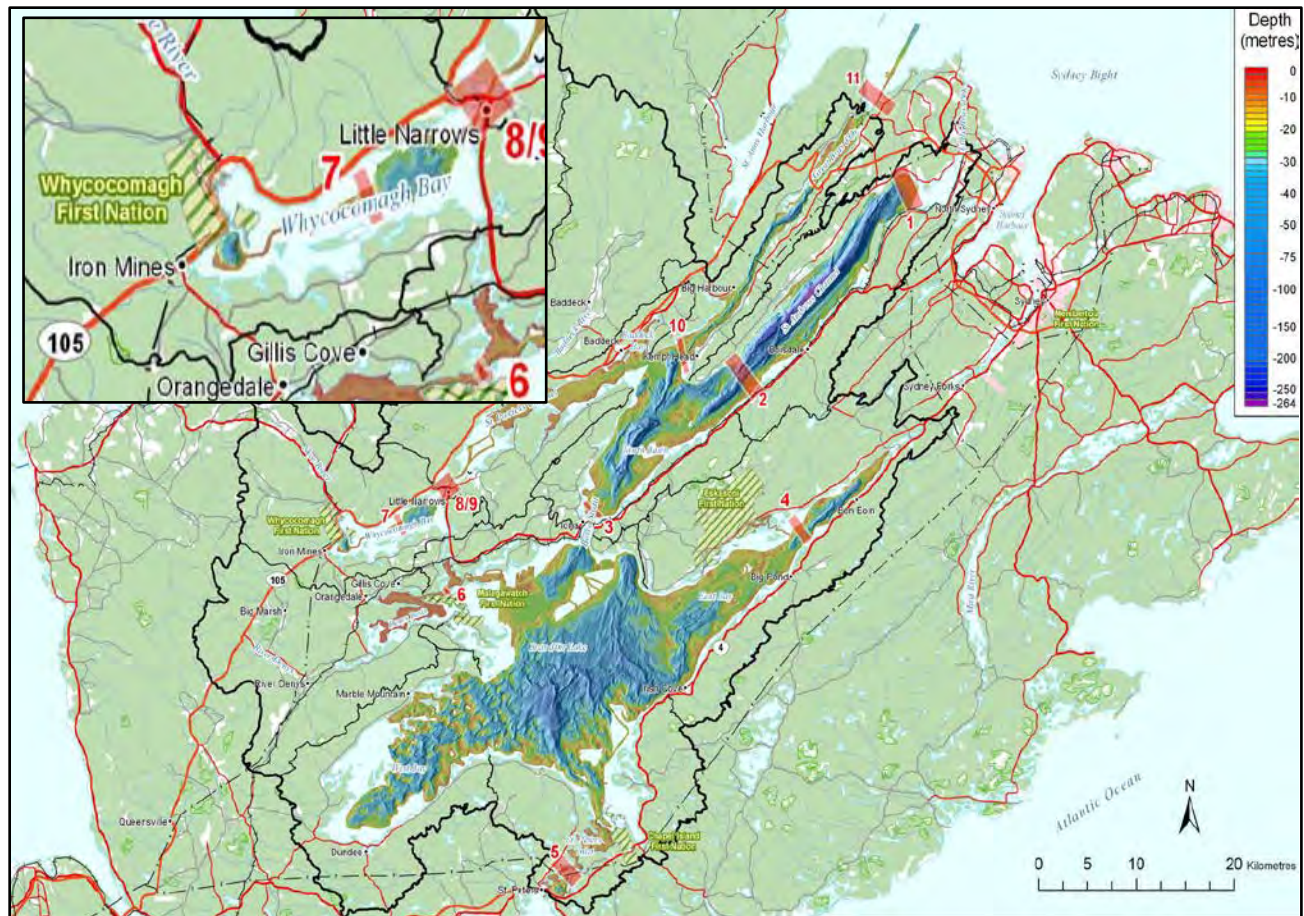


Plate 2: Multibeam coverage of the Bras d'Or Lakes; Inset: Basin sills (in red) within Whycocomagh Bay (Parker, et. al. 2007:14)

Water Sources

Proximity to water, for both drinking and transportation, is a key factor in identifying Pre-contact and historic Mi'kmaq, as well as early Euro-Canadian, archaeological potential. Most of the ecodistricts freshwater is found in several rivers as well as Lake Ainslie. A significant portion of freshwater wetlands, salt marshes, and coastal beaches also occur (Keys et al. 2017: 75; unit 320). The study area is located approximately 3.2 kilometres northwest of Whycocomagh Bay, 480 metres west of Skye River, and 750 metres north of Indian River. The confluence of these two rivers lies approximately 1.65 kilometres to the southwest.

Topography

The *Inverness Lowlands* is a small, irregularly shaped ecodistrict primarily made up of the valleys of seven large rivers in Inverness County and the shores of Lake Ainslie. The study area is somewhat sheltered by the surrounding uplands, with gently undulating to rolling low lying areas. Much of the land is considered suitable for farming. Abundant arable land and deposits of coal and gypsum at several locations led to widespread settlement of the ecodistrict. Karst topography can be found in areas associated with near-surface gypsum and limestone. Associated with Windsor era deposits of gypsum, karst landforms are characterized by underground drainage systems with sinkholes and caves (Keys et al. 2017: 75-77; unit 320).

Hillshade LiDAR DEM shows the study area as consisting of a predominantly hilly terrain, with low valleys and dried watercourses in the southern area (**Figure 4**).

Though not prevalent, the unique landform feature, karst topography, is present in the *Northumberland Lowlands*, as occurrences of gypsum and salt are scattered throughout the ecodistrict.

Soils

The underlying geology in the *Inverness Lowlands* ecodistrict is a mixture of sedimentary rocks, such as coal, sandstone, shale, gypsum, and limestone (Keys et al. 2017: 76; unit 320). The study area is covered with *Westbrook* series soils (ST2, ST2-L, ST8) (Keys 2007: 36). Dominant soils are derived from sandy glaciofluvial deposits. ST2 is mainly associated with fresh, coarse-loamy soils dominated by sandy loam texture with moderate drainage. ST2 is generally poor to medium in fertility with moisture limited during the growing season. ST2-L is a less common loamy phase of ST2 (Keys et al. 2011: 36). ST8 is the rich equivalent of ST2 and ST2-L and is found in association with these soils throughout the province. It is also the most common soil type found on well drained floodplains and old field sites. This soil type is associated with fresh, coarse-loamy soils, as well as rich, sandy or very gravelly soils (2011: 48).

Reddish clay deposits along the Skye River suitable for brick making have been noted “near the schoolhouse at Indian Rear” (Dawson 1884: 98). These clay deposits may have been significant to local Mi’kmaq as a possible source of clay suitable for the production of pottery.

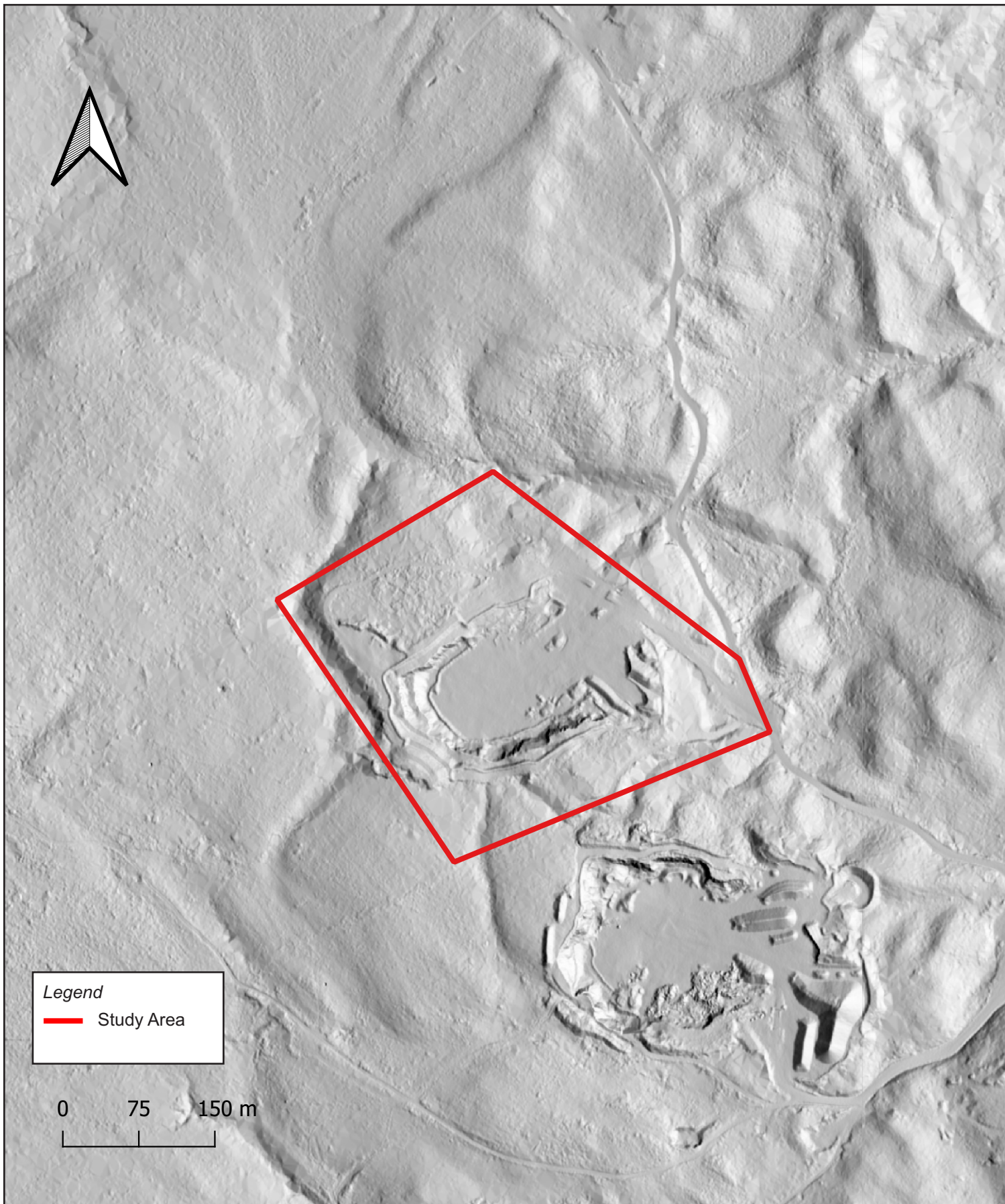
Flora


Most of the original forest within the *Inverness Lowlands* ecodistrict has been severely disturbed. Rich floodplains were host to sugar maple, white ash, and elm. Extensive forests of black spruce are found on the moist soils of this ecodistrict. Where hills and uplands provide shelter and well drained slopes hardwood forests, including sugar maple, yellow birch, and beech can be found. Under this canopy, the shrub layer consists of regenerating trees and shrubs such as fly-honeysuckle and beaked hazelnut. Where farmland has been abandoned, fields have typically reforested to stands of white spruce (Keys et al. 2017: 76, 78; unit 320).

Floodplains in the ecodistrict are home to various rare and uncommon plants such as bloodroot (*Sanguinaria canadensis*), wild coffee (*Triosteum aurantiacum*), Canada lily (*Lilium canadense*), and black ash. Fiddlehead ferns, also known as ostrich fern (*Matteuccia struthiopteris*), are a favourite green whose unfurled frond is harvested in the early spring. Floodplains in this ecodistrict are associated with level, terrain along major watercourses, including Skye River, as well as along larger streams (Keys et al. 2017: 78; unit 320).

Many rare and endangered plants such as showy lady’s slipper (*Cypripedium reginae*), yellow lady’s slipper (*Cypripedium parviflorum*), and black ash are found where karst topography gypsum is exposed (Keys et al. 2017: 79; unit 320).

Many of the above-listed plants are known traditional Mi’kmaq medicinal plants. Maple softened in water can be applied to the chest to soothe congestion and colds (Lacey 2012:74); the bark and leaves of beech trees have antiseptic qualities, and were used to treat tuberculosis and other chest complaints (Lacey 2012:50); the Mi’kmaq used birch to treat rheumatism as well as diarrhea (Lacey 2012:51); white spruce, or cat spruce, was used to treat infections of various kinds (Lacey 2012:38); bloodroot had many uses: the root for tuberculosis, the leaves for rheumatism, and dried roots were worn to prevent bleeding (Lacey 2012:6); lily was mashed and used to treat swollen limbs (Lacey 2012:72); though carefully picked due to its rarity, Lady’s Slipper, also known as “moccasin flower” can be used to make a nerve medicine and treat tuberculosis (2012: 13).



	Hillshade LiDAR Digital Elevation Model		Figure 4
	DEXTER WHYCOCOMAGH QUARRY EXPANSION ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020		December 2020
	INVERNESS COUNTY, NOVA SCOTIA		Scale Bar

4.1.2 Mi'kmaq Land Use

For at least 11,500 years, the territory of *Mi'kma'ki* or *Megumaage* has been inhabited by the Mi'kmaq and their ancestors – the *L'nuk* or “People”. The territory included all of modern-day Nova Scotia, Prince Edward Island, New Brunswick (north of the St. John River), the Gaspé region of Quebec, as well as parts of Maine and Newfoundland (CMM 2007: 11, Meuse 2016: 2).

The earliest human inhabitants of *Mi'kma'ki* are known as *Saqiwe'k L'nuk*, meaning the “Ancient People” (CMM 2007: 1). Present within what is known as the Paleo Period (13,000 to 9,000 years BP), the *Saqiwe'k L'nuk* may have arrived at the Maritime Peninsula due to changing periglacial environmental conditions that made the area a haven for caribou and other game animals (Deal 2016: 38; Sanders 2019).

The earliest evidence of people on the land in *Mi'kma'ki* was found in Mi'kmawey Debert, located approximately 190 kilometres southwest of the Dexter Whycocomagh Quarry study area. The Paleo Period habitation sites in the Debert/Belmont Complex, distributed along a sandy ridge south of the Cobequid Mountains, were occupied approximately 11,000 years BP by the *Saqiwe'k L'nuk*. Radiocarbon Dating has suggested that the site was occupied during the extreme cold of the Younger Dryas Chronozone (ca. 12,800 to 11,700 cal BP), when a global reduction of average annual temperature caused local forests to return to tundra and caused remnant glaciers in the Cobequid Mountains to re-advance (Sanders 2019: 19).

Mi'kma'ki is divided into seven districts, with the Whycocomagh Quarry expansion study area situated within *Unama'kik*, a variation of the word *Mi'kma'kik*, meaning “Mi'kmaw territory” (Sable & Francis 2012: 21). The study area is situated between two substantial rivers, Skye River and Indian River, northwest of their confluence. These watercourses drain into Whycocomagh Bay, along the northern basin of the Bras d'Or Lake. These rivers and bodies of water would have been important to the Mi'kmaq, their ancestors, and predecessors for transportation and resource gathering for millennia prior to the arrival of European settlers. Whycocomagh Bay and the Bras d'Or Lake would have likely held particular significance, as the seas and its products were of primary importance for the Mi'kmaq (Hoffman 1955).

The Bras d'Or lakes are known as *Petoobok* or *Pitawpo'q*, meaning “a long dish of salt water” or “inland sea” (Rand 1875: 83; Sylliboy). Whycocomagh or *We'koqma'q* means “where land begins” (Ta'n Weji-sqalia'tiek 2019).

Between the late sixteenth to the mid-eighteenth centuries, at least two Mi'kmaq villages were described as being located within *Unama'kik*. One in the north, near Port Dauphin or Englishtown, and the other in the southern region of the island, along the southernmost areas of the Bras d'Or lakes (Wicken 1994: 109-110). In the 1940s, approximately 46 Mi'kmaq summer villages were recorded, 35 located near the mouths of substantial rivers and the rest near saltwater lagoons, coves, and bays. One of the “largest and most significant” seasonal sites was *Oegogmag*, or Whycocomagh (Hoffman 1946).

We'koqma'q First Nation, originally called Whycocomagh or Waycobah, was established January 31, 1833. The reserve lands are located approximately 2.4 kilometres southwest of the study area (**Plate 3**). We'koqma'q was officially declared a band in May of 1958. Before that time, the community was under the jurisdiction of the Eskasoni Chief and Council (Barnard).

In Nova Scotia, information regarding archaeological sites is stored in the Maritime Archaeological Resource Inventory (MARI), a provincial archaeological site database, maintained by the Nova Scotia Museum. This database contains information on archaeological sites registered with the province within the Borden system. The Borden system, a Canada-wide system of site registration, is based on a block of latitude and longitude; each block being referenced by a four-letter designator. Sites within a block are numbered sequentially as they are recorded. The study area is located within the BICg Borden Block.

A review of MARI determined that there are no registered Mi'kmaq archaeological sites within or close to the study area. The lack of archaeological data for the area may reflect a lack of archaeological investigation, rather than an absence of archaeological sites. However, a collection of 5 registered sites, BICg-01 through BICg-05, relating to Pre-contact Mi'kmaq land use, are located approximately 3.3 to 4.5 kilometres southeast of the study area, on the shores of Whycomagh Bay and Indian Island.

Prior to undertaking the fieldwork portion of the assessment, CRM Group contacted KMKNO-ARD on October 13, 2020 requesting information regarding traditional or historic Mi'kmaq use of the study area. They provided information that was taken into consideration when preparing the archaeological assessment. As this knowledge of traditional Mi'kmaq usage of the study area is confidential in nature, it is not reproduced in this report. CRM Group also contacted representatives of We'koqma'q First Nation and Wagmatcook First Nation to inquire about any local knowledge of traditional or historic Mi'kmaq use of the study area. At the time of report production, a response had not been received.

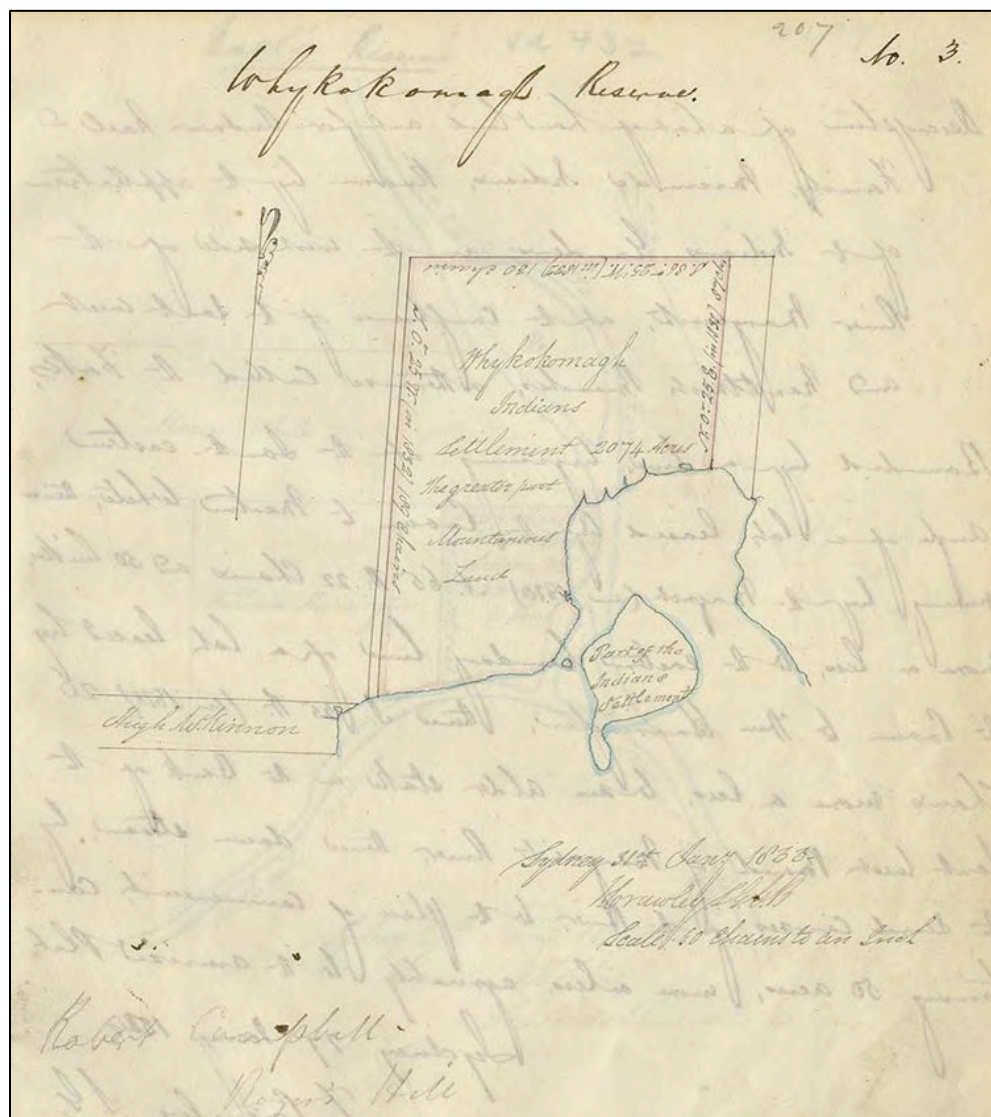


Plate 3: Map showing the Whycomagh Reserve. Thomas Crawley, Surveyor General of Cape Breton, 1833

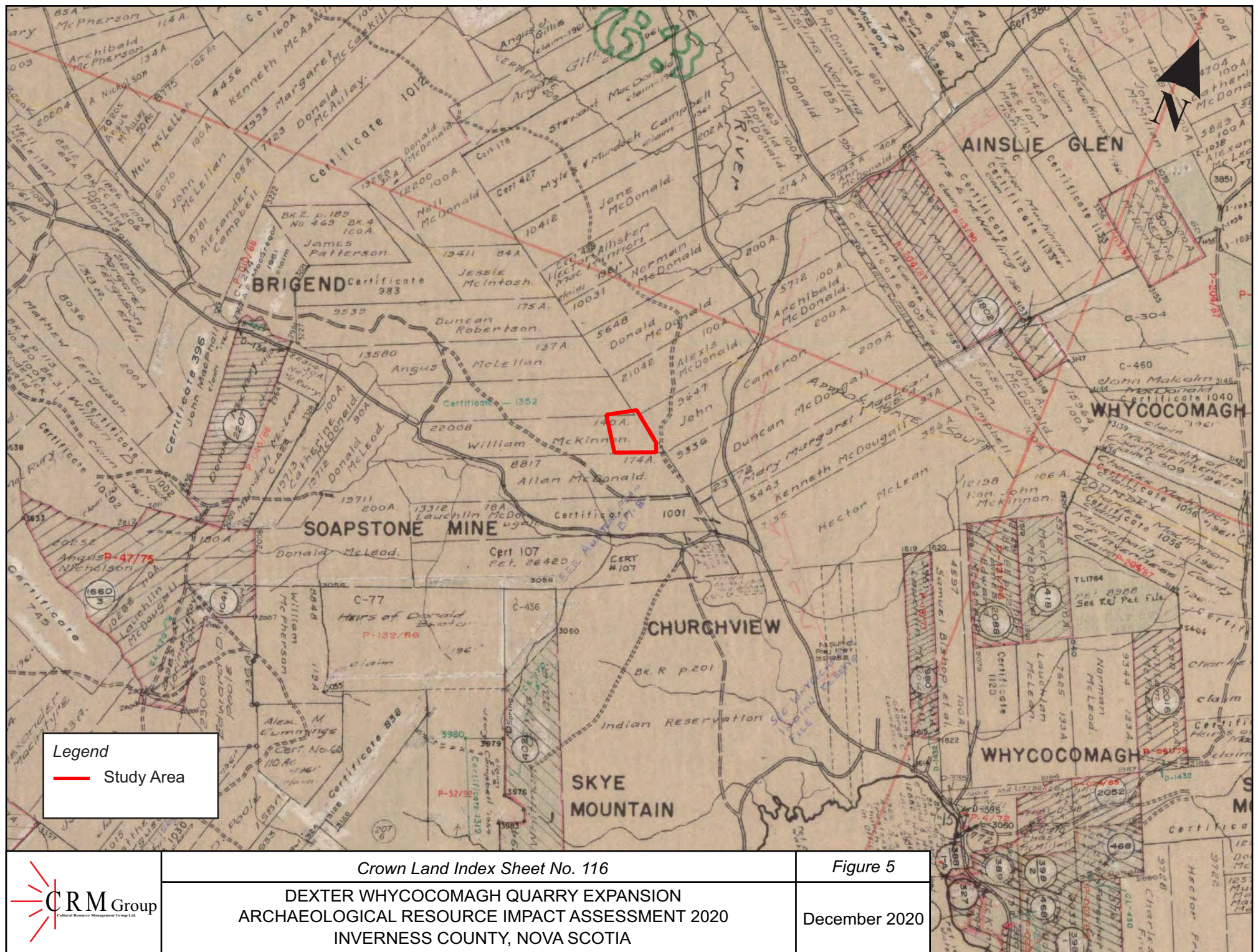
4.1.3 Euro-Canadian Land Use

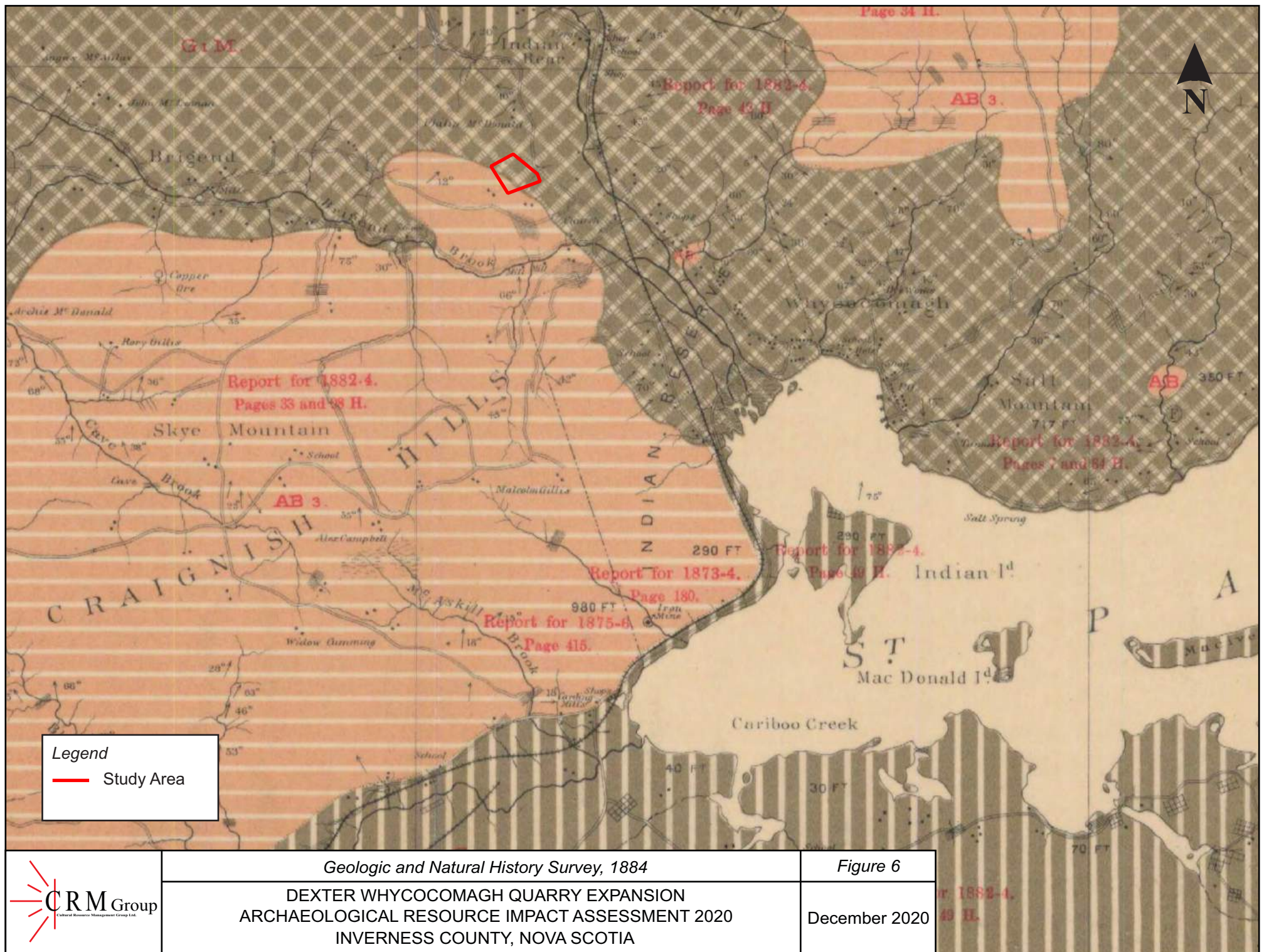
Records indicate that European settlement in the village of Whycocomagh, located at the head of St. Patrick's Channel, the northwest arm of the Bras d'Or Lake, commenced in the early 1820s with the arrival of predominantly Scottish immigrants. However, grievances filed by the local Mi'kmaq in 1821 indicate that Scotch settlers had been attempting to "occupy and cultivate" their lands for "more than forty years" (Crawley 1821). The area's first land grant was issued to Scottish settler John McKinnon, from Tyree, in 1821. Trade and travel over water were important factors in the growth and prosperity of the community. In the early 1830s, the village was involved in the trade of timber to Great Britain (PANS 1967: 734). By the early 1900s, a passenger and freight steamship servicing the Bras d'Or Lake visited Whycocomagh with an overnight stay three times per week (Gillis 2017).

As settlement continued, several smaller communities developed northwest of Whycocomagh. In the mid-late 1800s land grants were issued in Indian Rear (present-day Stewartdale), Churchview, Brigend (or Bridge End) (present-day Roseburn), and Soapstone Mine, among other small communities. The Dexter Whycocomagh Quarry Expansion study area is situated between these communities, most closely associated with Indian Rear (Stewartdale). The name Indian Rear was changed to Stewartdale in 1884, in honour of some of its early Scottish settlers (PANS 1967: 647). Grantees within Indian Rear included William McKinnon, Allan McDonald, and Alexis McDonald. The current study area falls within the land granted to William McKinnon. In 1882, Allan McDonald, originally from South Uist, was granted 174 acres south of the study area (**Figure 5**). Allan McDonald and his family arrived in Nova Scotia in 1822. He cultivated a successful farm, with his son Norman and grandson Allan carrying on the family farming tradition in Stewartdale (MacDougall 1922). An 1884 map of the area depicts several structures outside of the study area on the properties associated with McKinnon, as well as Allan and Alexis McDonald. Philip McDonald is noted as owning a structure west of Chuggin Road and four structures lie outside the study area north of Roseburn Rd. No structures are depicted within the study area (**Figure 6**). The Roseburn Road ran from the village church to the community of Roseburn, extending through Indian Rear. Historic accounts of Roseburn describe the "interesting community" as a "farming settlement that invites admiration" (MacDougall 1922). A.F. Church's 1884 map of Inverness County does not depict any structures within the study area (**Figure 7**).

The site of one of the area's earliest churches as well as the area's first cemetery is located approximately 800 metres southeast of the study area (**Figures 6 & 7**). Although a small church existed prior to the arrival of the Reverend Peter MacLean in 1836, that year construction began on a larger structure better suited to fit the congregation. However, before construction was finished the building was also deemed to be too small and work began on yet another structure, which was completed by 1857. The MacLean Church was destroyed by fire in 1960. The cemetery was situated on a hill opposite the church, with the first headstone reportedly erected in 1843 for the wife of Dr. John Nolles (MacLean United Church 1956: 22). Despite falling into a state of disrepair and becoming overgrown with spruce over time, graves were still visible within the cemetery. A pioneer memorial now stands at the former church site alongside the cemetery, which is now partially cleared of overgrowth (**Plates 4 & 5**; Whycocomagh & District Historical Society; McLean).

Approximately 1.2 kilometres southwest of the study area is the site of a local schoolhouse (**Figures 6 & 7**). A schoolhouse was established in the village of Whycocomagh as early as 1831. A school was built in Indian Rear (Stewartdale) between 1864 and 1867, with a new building constructed in 1876. However, local history states that Neil MacDonald was teaching in the area of Indian Rear as early as 1848 (PANS 1967: 305).







Inverness County, A.F. Church, 1884

Figure 7

DEXTER WHYCOCOMAGH QUARRY EXPANSION
 ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020
 INVERNESS COUNTY, NOVA SCOTIA

December 2020



Plate 4: Maclean United Church undergoing repairs in the early 1900s



Plate 5: Archway entrance to the Whycocomagh Pioneer Memorial

Approximately 800 metres south of the study area, several mills were constructed along Indian River, formerly known as Brigend Brook or Roseburn River. Historic records indicate a sawmill was erected here in 1885, and later another sawmill and two grist mills were constructed along the course of the river, moving towards the village of Whycomagh (MacLean United Church 1956: 36).

The homesteads depicted on historic maps, as well as their associated driveways, are clearly visible in a 1939 aerial photograph of the study area (**Figure 8**). The Roseburn Road is also visible, as a well-used road at this time. A 1969 aerial photo of the same area shows similar features still visible on the landscape, albeit with fewer standing structures (**Figure 8**).

The 2020 ARIA of the adjacent property resulted in the identification of three archaeological features based on information reviewed during the background study (A2020NS013; **Figure 9**). These features consisted of two cellar depressions and one stone foundation. As detailed in **Section 5.0**, these areas have been ascribed moderate archaeological potential for encountering Pre-contact and early historic Mi'kmaw archaeological resources, and high potential for encountering historic Euro-Canadian archaeological resources. Management recommendations have been made and accepted by Special Places for these areas.



1939



1969



2020



Aerial Photographs 1939, 1969, and 2020

DEXTER WHYCOCOMAGH QUARRY EXPANSION
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020
INVERNESS COUNTY, NOVA SCOTIA

Figure 8

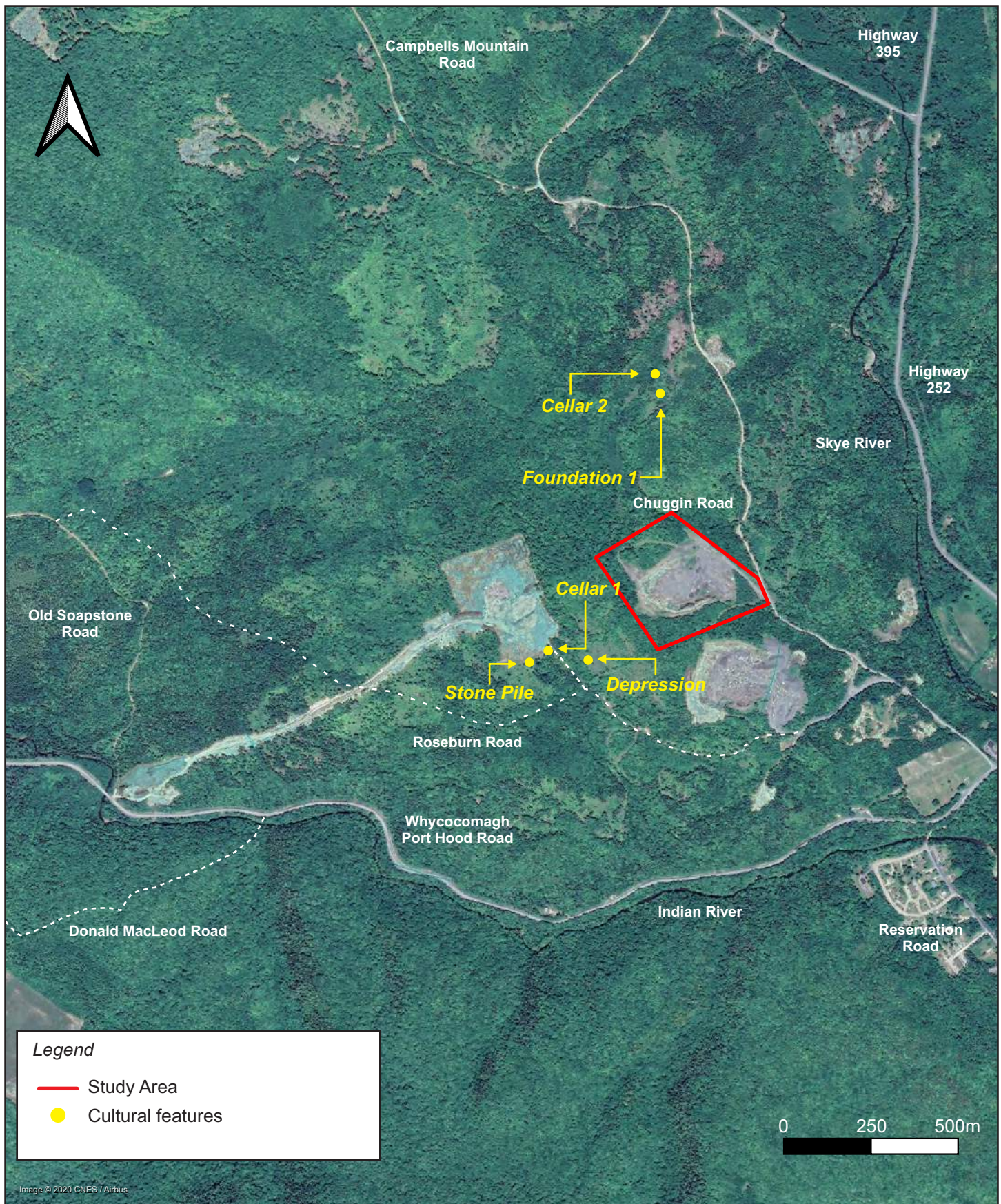
December 2020


Scale Bar

500 m

Legend
— Study Area





	Previously Identified Cultural Features	Figure 9
	DEXTER WHYCOCOMAGH QUARRY EXPANSION ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020 INVERNESS COUNTY, NOVA SCOTIA	December 2020
		Scale Bar

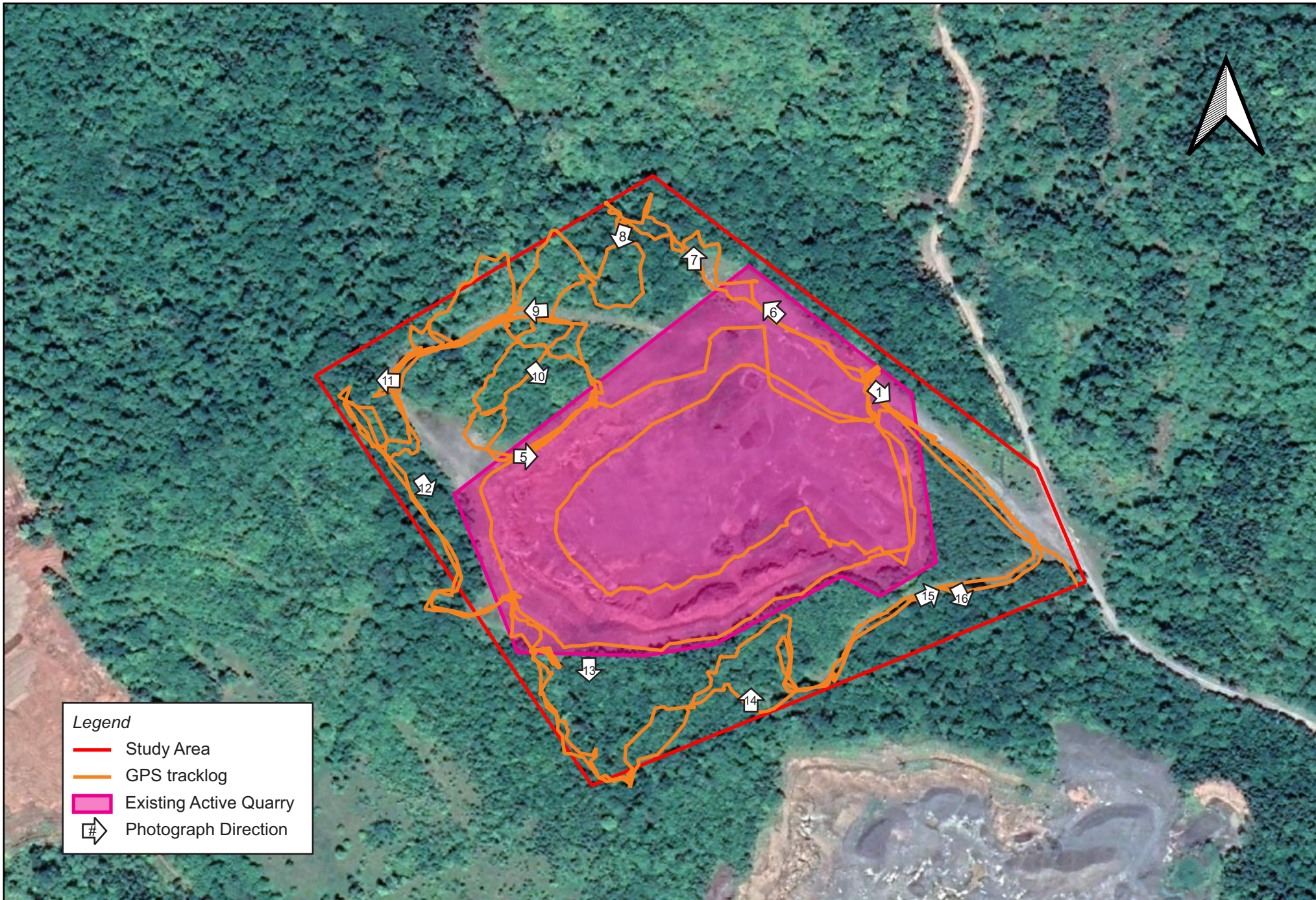
4.2 Field Reconnaissance

Fieldwork, consisting of archaeological reconnaissance, was undertaken on October 22, 2020. Weather conditions were clear and mild. The primary purpose of the visit was to assess the area for archaeological potential and investigate any topographical and/or cultural features identified as areas of elevated potential during the background study. The visual assessment involved a reconnaissance of the proposed quarry expansion impact (**Figure 10**).

As previously mentioned, access to the study area was gained via Chuggin Road, north off the Roseburn Road, west of the Whycocomagh Port Hood Road. The reconnaissance began within the proposed quarry expansion footprint, which is dominated by the existing quarry (**Plate 6**). The survey began along the northeast boundary of the study area. Mounds of disturbed natural material were identified surrounding the active quarry (**Plate 7**). The terrain consisted primarily of a moderate hummocky downward slope which became steeper towards the study area boundary (**Plates 8 & 9**). A roadway looped through the northern portion of the study area (**Plate 10**). This revealed additional mounds of disturbed material at its exit towards the active quarry area (**Plate 11**). To the northwest the terrain was sloped down to the edge of the study area.

A steep-sided ravine that once contained a waterway was tracked to the active quarry along the southern boundary of the study area (**Plates 12 & 13**). This steep slope continued to the south and east (**Plates 14 & 15**). A roadway was encountered and followed along the southeast boundary of the study area (**Plate 16**); steep slope was observed along both sides moving north toward the active quarry entrance (**Plate 17**). Ground conditions were primarily dry on sloped terrain with wet areas within low level terrain.

Based on previous development and ground disturbance (resulting from forestry and quarrying activities), as well as the study area being sloped with shallow rocky soils, far removed from significant watercourses, and without evidence of historic activity, the proposed Whycocomagh Quarry Expansion impact area is ascribed low potential for encountering Pre-contact and early historic Mi'kmaw archaeological resources and low potential for encountering historic Euro-Canadian archaeological resources.



Legend

- Study Area
- GPS tracklog
- Existing Active Quarry
- Photograph Direction



Plate 6: The active portion of the Whycocomagh Quarry, facing east. October 22, 2020.



Plate 7: Buildup of material adjacent to the active quarry, facing northwest. October 22, 2020.



Plate 8: Sloped area in northern portion of study area, facing north. October 22, 2020.



Plate 9: Upward slope within the northern portion of the study area, facing south. October 22, 2020.



Plate 10: Access roadway circling through the northern portion of the study area, facing west. October 22, 2020.



Plate 11: Buildup of material around the active quarry, facing south. October 22, 2020.



Plate 12: Slope leading towards the western edge of the study area, facing west October 22, 2020.



Plate 13: Ravine along the southern boundary of the study area, facing southeast. October 22, 2020.



Plate 14: Sloping within the southern portion of the study area, facing south. October 22, 2020.



Plate 15: Upward slope towards the active portion of the Whycocomagh Quarry, facing north. October 22, 2020.



Plate 16: Roadway within the southern portion of the study area, facing east. October 22, 2020.



Plate 17: Sloping in the southeastern portion of the study area, facing south. October 22, 2020.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The 2020 ARIA of Dexter's Whycocomagh Quarry expansion study area consisted of a background study, including Mi'kmaw engagement, and field reconnaissance of the proposed impact area. It did not involve sub-surface testing. The background study and field reconnaissance conducted by CRM Group determined that the proposed impact area exhibits low potential for encountering either Mi'kmaq (both Pre-contact and historic) or Euro-Canadian archaeological resources. This determination is based on the area being moderately to steeply sloped, relatively distant from significant sources of water and historic roadways, and containing no evidence of occupation.

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

1. It is recommended that the study area, as defined and depicted in this report (**Figure 2**), be cleared of any requirement for future archaeological investigation.
2. Should the ground disturbance extend beyond the current proposed impact area (**Figure 2**), further archaeological assessment must be conducted as the surrounding area retains archaeological potential.
3. In the unlikely event that archaeological deposits or human remains are encountered during activities associated with the development of the Trenton Pit, all work in the associated area(s) should be halted and immediate contact made with the Special Places Program (John Cormier: 902-424-6475).

6.0 REFERENCES CITED

Barnard, Karen

Ethnographies of Selected Reserves (Abridged). Cape Breton University.
<https://www.cbu.ca/indigenous-affairs/mikmaq-resource-centre/mikmaq-resource-guide/essays/ethnographies-of-selected-reserves-abridged/#We>

Church, Ambrose F.

1884 *Topographical Township Map of Inverness County, Nova Scotia*. A.F. Church & Co.: Halifax.

Crawley, Thomas

1821 *Letter from Crawley, Deputy Surveyor General, Cape Breton, to Rupert George...* Commissioner of Public Records — Indians series Nova Scotia Archives RG 1 Vol. 430 No. 158.

1833 *Report by Thomas Crawley, Surveyor General of Cape Breton, describing the Whykokomach [Whycocomagh] Mi'kmaq settlement. Includes map showing 2047 acres of reserve.* Commissioner of Public Records — Indians series Nova Scotia Archives RG 1 Vol. 432 pp. 206-207.

Department of Land and Forests

1946 *Crown Land Grant Index Sheet 16 – Inverness County*. Nova Scotia Department of Natural Resources.

Department of Natural Resources

1939 A6652-84. Department of Energy, Mines and Resources.

1969 A30213-37. Department of Energy, Mines and Resources.

Fader, Gordon

2005 *Glacial, Post Glacial, Present and Projected Sea Levels, Bay of Fundy*. Atlantic Marine Geological Consulting Ltd. Unpublished manuscript.

Fletcher, Hugh

1884 *Report on the Geology of Northern Cape Breton*. Annual Report, Geological Survey of Canada. Dawson Brothers: Montreal.

1884 *Province of Nova Scotia, Cape Breton Island, Whycocomagh Sheet*. Map No 15. Geological Survey of Canada.

Gillis, Rannie

2017 *Steamboats, sidewheelers plied Cape Breton waterways*. Cape Breton Post.
<https://www.capebretonpost.com/opinion/steamboats-sidewheelers-plied-cape-breton-waterways-20466/>

Hoffman, Bernard Gilbert

1955 *The Historical Ethnography of the Micmac of the Sixteenth and Seventeenth Centuries*. University of California, Berkeley.

Keys, Kevin

- 2007 *Forest Soil Types of Nova Scotia: Identification, Description, and Interpretation*. Nova Scotia Department of Natural Resources, Manual FOR 2007-2.

Keys, Kevin, et. al.

- 2010 *Forest Ecosystem Classification for Nova Scotia, Part II: Soil Types (2010)*. Nova Scotia Department of Natural Resources Renewable Resources Branch, Report For 2011-3.
- 2017 *Ecological Land Classification for Nova Scotia*. Nova Scotia Department of Natural Resources Renewable Resources Branch, Report For 2017-13.

MacDougall, John L.

- 1922 *History of Inverness County, Nova Scotia*. Truro: News Publishing.
<https://electricScotland.com/canada/inverness/index.htm>

MacLean, Sandy

MacLean Church and Stewartdale Cemetery. Clan MacLean Atlantic Canada.
<http://www.clanmacleanatlantic.org/his-stewartdale.html>

MacLean United Church

- 1956 *A View of the Whycocomagh Congregation*. Nova Scotia Archives. V/F vol. 61, no. 22.

Parker, M., M. Westhead, P. Doherty, and J. Naug

- 2007 *Ecosystem Overview and Assessment Report for the Bras d'Or Lakes, Nova Scotia*. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2789. Oceans and Habitat Branch, Bedford Institute of Oceanography. Fisheries and Oceans Canada: Dartmouth.

Public Archives of Nova Scotia.

- 1967 *Place-names and Places of Nova Scotia*. Halifax: PANS.

Rand, Silas T.

- 1875 *A First Reading Book in the Micmac Language*. Halifax: Nova Scotia Printing Company.

Shaw, John, D.J.W. Piper, and R.B. Taylor

- 2002 *The Geology of the Bras d'Or Lakes, Nova Scotia*. Proceedings of the Nova Scotian Institute of Science. Volume 42, Part 1, pp. 127-147.

Shaw, John, et al

- 2006 *A conceptual model of the deglaciation of Atlantic Canada*. Quaternary Science Reviews. 25:2059-2081.

Sylliboy, Helen

Mi'kmaw Place Names in Cape Breton. Cape Breton University.
<https://www.cbu.ca/indigenous-affairs/unamaki-college/mikmaq-resource-centre/miscellany/mikmaw-place-names-in-cape-breton/>

Ta'n Weji-sqalia'tiek: Mi'kmaw Place Names

- 2015 <http://gis.membertougeomatics.com/mpnmap/>

Whycocomagh & District Historical Society

2017 *Whycocomagh Historical Society*. The Participaper: An Inverness County Periodical.

Wicken, William C.

1994 *Encounters with Tall Sails and Tall Tales: Mi'kmaq Society, 1500-1760*. Ph.D. thesis submitted to Faculty of Graduate Studies. McGill University: Montreal.



Archaeological Assessment
Heritage Resource Planning
Cultural Heritage Conservation
Site Interpretation & Development

September 24, 2020

SPECIAL PLACES PROGRAM
NOVA SCOTIA COMMUNITIES, CULTURE and HERITAGE
1741 Brunswick St, 3rd Floor
PO Box 456
Halifax, Nova Scotia
B3J 2R5

Attn: Anna Cross
Acting Coordinator, Special Places

Application for a Category 'C' Heritage Research Permit for Archaeological Resource Impact Assessment for the Dexter Whycomomagh Quarry Expansion, Inverness County

Cultural Resource Management (CRM) Group has been retained by Dexter Construction Company Ltd. to conduct archaeological screening and reconnaissance of a proposed expansion of an existing quarry in Whycomomagh, Inverness County.

The accompanying application for a Category 'C' Heritage Research Permit (HRP) has been prepared by Sarah Ingram, archaeologist with CRM Group, for submission to the Special Places Program.

We look forward to your review of our application. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

CULTURAL RESOURCE MANAGEMENT GROUP

Sarah J. Ingram, MA, RPA
Partner | Archaeologist

KAG/sji

Enc.





Heritage Research Permit (Archaeology)

Office Use Only
Permit Number:

Special Places Protection Act 1989

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

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

Surname Ingram

First Name Sarah

Project Name

Dexter Construction Whycocomagh Quarry Expansion

Name of Organization

Cultural Resource Management Group Ltd.

Representing (if applicable)

Dexter Construction

Permit Start Date October 8, 2020

Permit End Date December 31, 2020

General Location: The proposed development area is located north of the Whycocomagh Port Hood Road and west of Route 252 in Inverness County. The study area is located approximately 3 kilometres northwest of We'koqma'q First Nation and Whycocomagh Bay on Cape Breton Island

Specific Location: (cite Borden numbers and UTM designations where appropriate and as described separately in accordance with the attached Project Description. Please refer to the appropriate Archaeological Heritage Research Permit Guidelines for the appropriate Project Description format)

20T 642627.82 m E 5094490.12 m N

Permit Category:

Please choose one

☐

Category A – Archaeological Reconnaissance

☐

Category B – Archaeological Research

☒

Category C – Archaeological Resource Impact Assessment

☒

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

Signature of applicant

Date September 24, 2020

Approved by
Executive Director

Date

Dexter Construction Company Limited

Whycocomagh Quarry Expansion
Inverness County, Nova Scotia
Archaeological Resource Impact Assessment 2020

DESCRIPTION OF PROJECT

1. **NAME:** Sarah J. Ingram

2. **ADDRESS:** Cultural Resource Management Group Ltd.
Ten Mile House
1519 Bedford Highway
Bedford, Nova Scotia
B4A 1E3

3. **OCCUPATION:** Archaeologist

4. **EMPLOYER** Cultural Resource Management Group Ltd.

5. **COMMENCEMENT OF FIELD INVESTIGATIONS:**

It is proposed that the Archaeological Resource Impact Assessment (ARIA) of the Whycocomagh Quarry expansion area be initiated as early as October 8, 2020.

6. **TERMINATION OF FIELD INVESTIGATIONS:**

It is anticipated that the assessment would be completed by December 31, 2020.

7. **SUMMARY OF PROJECT:**

Dexter Construction Company Limited (Dexter) is proposing the expansion of an existing quarry located in Whycocomagh, Inverness County. In order to investigate the potential for encountering archaeological resources during any development of the property, Cultural Resource Management Group Limited (CRM Group) has been retained by Dexter to undertake an ARIA of the proposed project area.

The ARIA will be undertaken by CRM Group Archaeologist Sarah Ingram (SJI). Sarah will be assisted during the field reconnaissance by another CRM Group Archaeologist (TBD).

8. **LOCATION OF PROJECT**

The proposed development area is located north of the Whycocomagh Port Hood Road and west of Route 252 in Inverness County. The study area is located approximately 3 kilometres northwest of We'koqma'q First Nation and Whycocomagh Bay on Cape Breton Island (*Figures 1, 2 & 3*).

9. PROJECT DESCRIPTION

(a) Development Description

Dexter is proposing the expansion of an existing quarry in Whycocomagh, Nova Scotia.

(b) Nature of Land Disturbance in Relation to Sites

A review of the Maritime Archaeological Resource Inventory (MARI) determined that there are no registered archaeological sites within the Whycocomagh Quarry study area. However, a collection of 5 registered sites, BICg-01 through BICg-05, relating to Pre-contact Mi'kmaq land use, are located approximately 3 - 4.3 kilometres southeast of the study area, on the shores of Whycocomagh Bay and Indian Island.

(c) Scheduling

The projected date for commencement of the Whycocomagh Quarry project is as early as October 8, 2020.

(d) Size of Area to be Disturbed

The proposed impact area is approximately 10 hectares, comprised largely of the existing quarry (**Figure 2**).

(e/f) Name and Address of Landowner/Developer

Assessment of the proposed quarry expansion is being overseen by Rhett Thompson of Dexter. Rhett's contact information is detailed below:

Rhett Thompson, P.Eng
Dexter Construction Company Ltd.
927 Rocky Lake Drive
Bedford, Nova Scotia
B4A 3Z2

Tel: (902) 835-3381
E-mail: rtompson@dexter.ca

(g) Research Plans and Methodology

In keeping with Nova Scotia's ***Special Places Protection Act Heritage Research Guidelines*** for Category C Heritage Research Permits (HRP), the research plan consists of four components: background research; Mi'kmaw engagement; reconnaissance; and, the preparation of a HRP report. The report will summarize the results of the background research, Mi'kmaw engagement and fieldwork, presenting an assessment of the archaeological potential within the project area and recommending archaeological resource management strategies.

Background Research

To evaluate archaeological resource potential, CRM Group will prepare a historical background overview of the study area, identifying any known areas of historical or archaeological sensitivity. Particular attention will be given to gathering information pertaining to Mi'kmaq settlement.

The background study will involve an examination of documentation available at Nova Scotia Archives and the Nova Scotia Land Information Centre, such as legal survey records, census records and historic maps, as well as local and regional histories, in order to reconstruct a general land use history. Topographic

maps and aerial photographs, both current and historic, will be used in conjunction with LiDAR data in the archaeological evaluation of the impact area.

MARI records will be reviewed to identify both registered and reported archaeological sites in the vicinity of the study area. In addition, contact will be made with other individuals and organizations having knowledge of potential historical, archaeological or architectural resources within the study area.

Base mapping will be reviewed to identify topographic or hydrological features that may have attracted human settlement and resource exploitation. Ultimately, the historical and cultural information will be integrated with the environmental data to identify areas of significant archaeological potential.

Mi'kmaq Engagement

Although there is no known Mi'kmaq association specific to this property, CRM Group will contact the Kwilmu'kw Maw-Klusuaqn Negotiation Office's Archaeological Research Division (KMKNO-ARD), as well as the local First Nation (We'koqma'q First Nation) to request any information pertaining to traditional or historical use of the subject property.

Reconnaissance

During the final stages of the background research, a visual assessment of the proposed study area will be undertaken to familiarize researchers with its physical and environmental characteristics. Particular attention will be shown to areas exhibiting high archaeological potential. Where artifacts are exposed on the ground surface, diagnostic examples will be collected and retained for analysis. In addition, all Mi'kmaq physical cultural resources that are identified in the field will be collected, as all artifacts are culturally significant to the Mi'kmaq. Any archaeological resources identified in the course of the reconnaissance will be properly documented and registered with the Special Places Program. The discovery of any resources of particular significance or sensitivity will be immediately reported to Special Places.

Reporting and Recommendations

Upon completion of the field component of the archaeological assessment, a report will be prepared for the Special Places Program in compliance with the terms of the Category C HRP. The format and contents of the report will comply with the specifications as outlined in the HRP Guidelines. Included in the report will be an initial evaluation of the significance of any archaeological resources identified, an assessment of the potential impacts that development could have on those resources and recommendations for testing and/or mitigation of those resources.

Following review by the client, the assessment report will be submitted to Special Places. If no significant archaeological resources are encountered during the assessment, Special Places will be asked to grant archaeological clearance for the undertaking. The discovery of significant archaeological resources will prompt recommendations for avoidance or further archaeological investigation to determine the requirements for mitigation.

10. CURRICULUM VITAE

Please see previous permit application.

11. PREVIOUS PERMITS

The applicant has held numerous Heritage Research Permits for ARIAs undertaken throughout Nova Scotia.

12. FACILITIES

Analysis and temporary storage of any artifacts recovered will occur at the CRM Group labs at Ten Mile House in Bedford.

13. SPECIALIST SERVICES

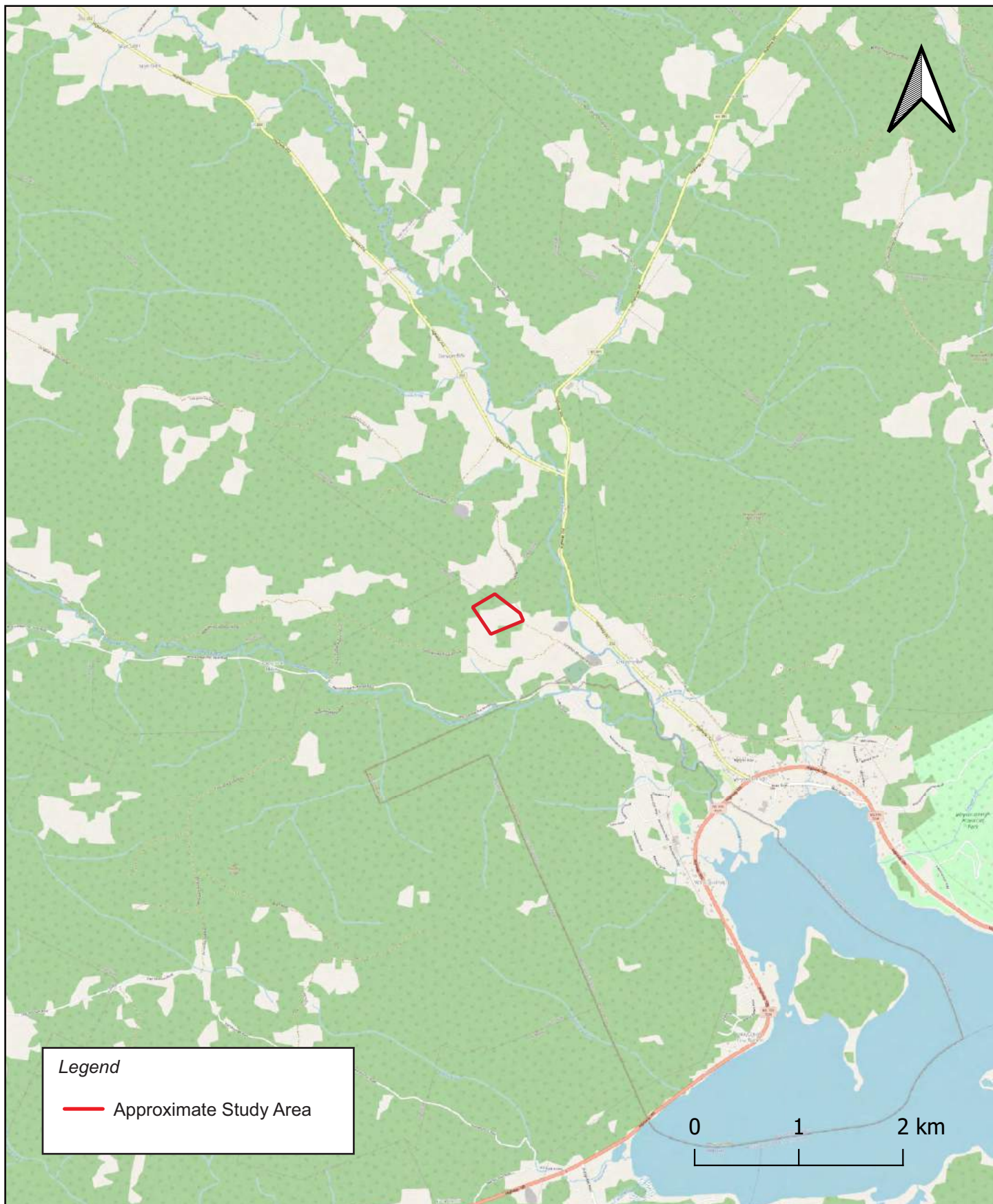
It is not anticipated that the proposed project will require specialist services.

14/15. CONSERVATION

It is not anticipated that the proposed project will require conservation services, but if perishable artifacts are recovered, CRM Group will contact Brittany Houghton and have her address conservation issues.

16. CONSERVATOR'S CURRICULUM VITAE

Brittany Houghton's *curriculum vita* is on file with Special Places.



WHYCOCOMAUGH QUARRY
EA Study Area
Imagery June 4, 2019

PID 50107614
JANET BINGHAM

PID 50209980
MUNICIPAL ENTERPRISES LTD.

PID 50108729
NOVA CONSTRUCTION CO. LTD.

EA STUDY AREA
APPROX. 10 HECTARES

CHUGCH ROAD

PID 50107184
ALVA CONSTRUCTION LTD.



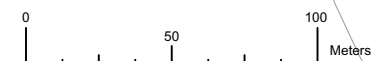
Detailed Study Area

WHYCOCOMAGH QUARRY
ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT 2020
INVERNESS COUNTY, NOVA SCOTIA

Figure 2

September 2020

Scale Bar





**Communities,
Culture & Heritage**

1741 Brunswick Street
3rd Floor
P.O. Box 456
Halifax, NS
B3J 2R5

Tel: (902) 424-6475
Fax: (902) 424-0560

April 19, 2021

Sarah Ingram
Cultural Resource Management Group Limited
Ten Mile House
1519 Bedford Highway
Bedford, Nova Scotia
B4A 1E3

Dear Sarah Ingram:

**RE: Heritage Research Permit Report
A2020NS110 – Dexter Wycocomagh Quarry Expansion**

We have received and reviewed the report on work conducted under the terms of Heritage Research Permit A2020NS110 for an archaeological resource impact assessment of the Dexter Wycocomagh Quarry Expansion in Inverness County, Nova Scotia.

This report details the ARIA conducted by Cultural Resource Management Group (CRM Group) for the Wycocomagh Quarry Expansion Archaeological Resource Impact Assessment 2020 on behalf Dexter Construction Company Limited (Dexter) in October 2020. The ARIA involved background research, Mi'kmaq engagement, and field reconnaissance, and was intended to identify, document, interpret, and make management recommendations for the potential cultural resources within the proposed impact area.

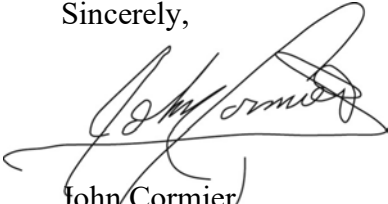
The background study indicated continued use of the area around the proposed development by Indigenous Mi'kmaq peoples, as well as Euro-Canadian occupation since the early 19th Century. However, the field reconnaissance showed a heavily disturbed landscape with moderate to steep slopes, an absence of immediate water sources and no historic roadways in close proximity. Based on this the reporter has deemed the area to be of low potential for encountering Mi'kmaq archaeological recourse or historic cultural resources from Euro-Canadian colonization. CRM Group offered the following management recommendations for the study area:

1. It is recommended that the study area, as defined and depicted in this report, be cleared of any requirement for future archaeological investigation.
2. Should the ground disturbance extend beyond the current proposed impact area, further archaeological assessment must be conducted as the surrounding area retains archaeological potential.
3. In the unlikely event that archaeological deposits or human remains are encountered during activities associated with the development of the Trenton Pit, all work in the associated area(s) should be halted and immediate contact made with the Special Places Program (John Cormier: 902-424-6475).

S. Ingram
April 20, 2021
Page 2

CCH Staff agrees with the recommendations and finds this report acceptable as submitted. Please do not hesitate to contact me should you have any questions or concerns.

Sincerely,



John Cormier
Coordinator, Special Places

APPENDIX F
WATER BALANCE ASSESSMENT
(Consulting Hydrogeologist J. Fraser, 2021)

Environmental Assessment Registration Document:
Whycocomagh Quarry Expansion
Stewartdale, Municipality of the County of Inverness
Nova Scotia

PROPOSED WHYCOCOMAGH QUARRY EXPANSION

WATER BALANCE ASSESSMENT

Prepared by Mr. Jim Fraser, P.Geo, M.A.SC

Date: July 22, 2021

1.0 INTRODUCTION

This document outlines the Water Balance Assessment undertaken for the proposed Whycocomagh Quarry Expansion Project, located in Whycocomagh, Inverness County, Nova Scotia. Dexter Construction Company Limited (Dexter) operates a Nova Scotia Environment and Climate Change (NSECC) approved quarry of less than 4 hectares. The Quarry serves as a strategic source of construction aggregate to support local construction and roadwork, as well as Nova Scotia Transportation and Active Transit projects in the area. The existing Quarry is proposed to be expanded to a maximum 10.0-hectares. The proposed quarry expansion is intended to provide additional aggregate reserves to support the long-term sustainability of the site. It is anticipated that the rate of quarry development will progress gradually, at a rate consistent with aggregate demand in the area and growth of the local market.

The water balance presented herein is an assessment of the estimated effects on surrounding surface water features resulting from the proposed quarry expansion. The methodology used for this water balance assessment is consistent with the approach used recently to assess similar quarry expansion projects undergoing Environmental Assessment.

For this water balance assessment three (3) site conditions were analyzed; existing (baseline) conditions, quarry full development conditions, and reclaimed quarry conditions. Existing conditions include a gravelled quarry area of approximately 4.5-hectares, which includes the quarry highwall, crusher set-up and stockpile areas, and portions of the site access road. Quarry full development conditions consider the quarry at full development of 10.0-hectares. Reclamation conditions are representative of the site upon removal of all construction equipment and buildings, after re-contouring, and following the re-introduction of vegetative cover over the Quarry areas.

Progressive reclamation will occur throughout the development and operation phases of the quarry. As the site is developed and aggregate reserves are depleted, disturbed areas no longer required for aggregate production or site related activities will be progressively rehabilitated. This includes using grubbing material originating onsite for site grading, slope construction, and re-vegetation efforts. Temporarily stockpiling, re-use of overburden, and establishment of vegetation is anticipated to simulate pre-development conditions. Areas that have been progressively rehabilitated would be expected to have reduced surface water runoff and increased infiltration, reflective of natural conditions in the area. This water balance assessment does not account for progressive reclamation, so the development scenarios presented represent the worst-case for each scenario with respect to runoff quantity.

Due to the range of infiltration rates possible, the water balance was completed for two (2) infiltration scenarios. The two infiltration scenarios represent the range of possible outcomes from existing/natural infiltration (most likely) to 100% impervious (worst case, no infiltration).

1.1 DATA COLLECTION

1.1.1 Topographic Data

The proposed quarry expansion is located on an upland area which slopes gently to the Skye River Valley. All surface water runoff from the existing quarry and proposed expansion area will flow to the

east towards the Skye River. The area surrounding the existing quarry is partial woodland due to historic tree harvesting and the surficial material consists of sandy loam type soil.

A 5-meter (m) contour interval obtained from the NS Geomatic Center 1:10,000 topographic map was used to delineate the catchment area for the Quarry. The contours were assessed both manually and digitally to delineate the watersheds used for the water balance assessment.

1.1.2 Climate Data

Precipitation and temperature data were collected from the Baddeck Climate Station (1981-2010), which is located approximately 34 kilometers (km) from the Quarry. Monthly lake evaporation data was obtained from the Environment Canada Truro Station (1981-2010). The Truro station is the closest climate station to the Project Site that collects lake evaporation data and is located approximately 240 km away from the Quarry. Monthly potential evapotranspiration data was calculated using the Hamon equation (1961) (Lu, et al., 2005). The Hamon equation requires monthly average hours of daylight and monthly average temperature as input. Monthly average hours of daylight were calculated for the site using the Sunrise and Sunset Calculator (<https://www.timeanddate.com/sun/>, last accessed on June 28, 2021).

Table 1 - Climate Normal Data

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTAL
Temperature¹ (°C)	-5.4	-5.8	-2.3	3.2	9.0	13.9	18.1	18.5	14.6	8.9	3.8	-1.5	-
Precipitation¹ (mm)	155.0	125.6	128.6	125.8	104.0	104.8	97.5	107.2	127.8	137.1	155	166.3	1,535
Lake Evaporation² (mm)	0.0	0.0	0.0	0.0	89.9	102.0	117.8	96.1	69.0	40.3	0.0	0.0	515
PET³ (mm)	0.0	0.0	0.0	33.5	53.6	76.1	95.9	90.8	64.3	39.6	25.0	0.0	479

¹ Values obtained from the Baddeck Climate Station

² Values obtained from the Truro Climate Station

³ Potential Evapotranspiration was calculated using the Hamon equation (1961), Lu, et al., 2005)

2.0 METHODOLOGY

The water balance assessment for the Whycocomagh Quarry was prepared to assess predicted changes in local flow characteristics during an average year for the three site conditions (existing / quarry full development / reclaimed quarry) and two infiltration scenarios (pervious / impervious). The methodology used for this water balance assessment is consistent with the approach used recently to assess similar quarry expansion projects undergoing Environmental Assessment.

2.1 Watershed Delineation

The area potentially affected by the proposed quarry expansion involves a single watershed, defined as the “Whycocomagh Quarry Catchment Area”. The catchment area encompasses a total of 38 ha, including a disturbed area associated with the existing quarry of approximately 4.5 ha. The proposed quarry expansion area is wholly located within the catchment area. Surface water in the watershed flows from west to east with the point of ultimate discharge to the Skye River located approximately 535m from the eastern quarry boundary.

The catchment area delineation, boundary of existing quarry operations, and the proposed quarry expansion area is presented on **Figure 1**. Where the proposed quarry expansion will not change or alter the local catchment area, the catchment area used for all development scenarios is consistent.

It is noted that a competitor quarry is operating in the western portion of the catchment area. In the future, if this competitor quarry expands to the north / east, it is expected that runoff generated in this area will be directed to the south, rather than east as natural topography would indicate. This would in effect reduce the size of the Whycomomagh Quarry catchment area considered in this water balance assessment. The potential loss of catchment area is expected to be minimal and was not considered in this water balance assessment.

2.2 Evaporation and Evapotranspiration Potential

Evaporation (E) describes the process of the return of moisture to the atmosphere from open water and land surfaces. Evaporation from plant surfaces is referred to as evapotranspiration (ET). The magnitude of evaporation and evapotranspiration over time is a function of the climate, soil, and vegetation in the area. Evaporation rates tend to peak in the summer months when temperatures are the highest, daylight hours are the longest, sun intensity is greatest, and the growing season is at its peak.

Lake evaporation (LE) is the amount of evaporation from an open body of water. In Atlantic Canada, the lake evaporation rate is greater than the standard evaporation rate because of the constant availability of water. Based on aerial photos and available wetland mapping it is noted that there are no open water sources or identified wetlands within the quarry catchment area, so for this water balance assessment lake evaporation is 0 for all scenarios.

Evapotranspiration rates were calculated using the Hamon equation (1961), which is based on average monthly temperatures and daylight hours. Potential evapotranspiration rates for the 4 months of December to March were set to zero due to low temperatures resulting in minimal potential for evapotranspiration. The total potential evapotranspiration used for this water balance is 478.8 mm/year. July represents the month with the highest PET at 95.9 mm/month. **Table 1** includes a summary of the potential evapotranspiration rates used as a water loss parameter in the water balance assessment.

2.3 Infiltration Factor

Water storage/infiltration has been estimated using the infiltration factors taken from Table 3.1 of the Ontario Ministry of Environment, Conservation and Parks (OMECP) Stormwater Management Planning and Design Manual (2003). Calculations using the OMECP Table 3.1 account for slope, soil types and vegetation cover when estimating the water holding capacity for an area. The slope, soil type, and vegetative cover within the quarry catchment area was used to determine the appropriate infiltration factor. Using this procedure, as outlined in Appendix 1 – Quarry Water Balance Factors, the quarry catchment area was determined to be hilly land (0.12 - 0.15), with partial woodland (0.11 - 0.13) and sandy loam soil (0.11 - 0.15) derived from local bedrock sources (Stea et al., 1992).

Two scenarios were assessed for the infiltration conditions during existing and quarry full development conditions; (1) an impervious quarry floor where no infiltration occurred through the floor of the quarry; and (2) a pervious quarry floor consisting of similar infiltration capabilities as existing surficial soils (sandy loam). Due to the nature of the surficial soils and the presence of bedrock near the ground

surface, it is unlikely the soil will have greater infiltration at the floor of the quarry than the existing surface. In this regard therefore, these two scenarios represent the maximum and minimum values for expected infiltration in the quarry. These two scenarios provide a range of potential outcomes resulting from quarry development. New infiltration factors for these scenarios were calculated using an area-ratio method.

Reclamation conditions were expected to be similar to pre-development conditions, with the exception of Flat Land (0.3) and Cultivated Land (0.1) in the area where the quarry was located. An area-ratio method was applied to determine the appropriate infiltration factor for the slope and land use in the quarry catchment area.

Runoff volumes for this water balance were assumed to equal the total precipitation less the potential evapotranspiration, lake evaporation, and infiltration. Infiltration includes groundwater recharge and groundwater that contributes to surface water resources as baseflow. This Water Balance Assessment does not distinguish between the two, and as such groundwater recharge was not included in this water balance assessment. The proposed quarry expansion will not enter the deep bedrock groundwater table, and overall is not anticipated to significantly impact or alter groundwater.

3.0 WATER BALANCE ANALYSIS

3.1 Whycocomagh Quarry Catchment Area

The existing quarry conditions include a 4.5-hectare quarry located within the 38.0-hectare catchment area. The existing Quarry is proposed to be expanded to a maximum 10.0-ha. All surface water runoff from the existing quarry and proposed expansion area will flow to the east into the Skye River.

Table 2 summarizes the details of the Water Balance Assessment for the quarry catchment area under the three development scenarios considered (existing / quarry full development / reclaimed quarry) and two infiltration (pervious / impervious) scenarios.

Table 2 – Water Balance – Whycocomagh Quarry Catchment Area

Sub-Catchment A-1	Area (ha)	Available Water (m ³)	Lake Evaporation (m ³)	PET (m ³)	Infiltration (m ³)	Runoff (m ³)	Change in Infiltration from Existing Conditions	Change in Runoff from Existing Conditions
Existing Conditions: Impervious Quarry Floor	38.0	583,033	0	181,911	154,905	246,216	-	-
Quarry Full Development: Impervious Quarry Floor	38.0	583,033	0	181,911	149,077	252,044	-3.8%	2.4%
Existing Conditions: Pervious Quarry Floor	38.0	583,033	0	181,911	162,032	239,089	-	-
Quarry Full Development: Pervious Quarry Floor	38.0	583,033	0	181,911	164,947	236,175	1.8%	-1.2%
Quarry Reclamation: Pervious Quarry Floor	38.0	583,033	0	181,911	164,947	236,175	1.8%	-1.2%

Based on the results of the water balance assessment it is estimated that the change in infiltration from Existing Conditions ranges between –3.8% (Full-Development, Impervious Quarry Floor) to 1.8% (Full Development/Reclamation, Pervious Quarry Floor). It is estimated that the change in runoff from Existing Conditions ranges from –1.2% (Full Development/Reclamation, Pervious Quarry Floor) to 2.4% (Full Development, Impervious Quarry Floor).

4.0 SUMMARY

The Whycocomagh Quarry water balance assessment was prepared to estimate changes in surface water flow and assess the potential impact of the proposed quarry expansion on the local hydrological regime. The methodology used for this water balance assessment is consistent with the approach used recently to assess similar quarry expansion projects undergoing Environmental Assessment.

The Water Balance Assessment estimates that the change in infiltration from Existing Conditions ranges between –3.8% (Full-Development, Impervious Quarry Floor) to 1.8% (Full Development/Reclamation, Pervious Quarry Floor). It is estimated that the change in runoff from Existing Conditions ranges from –1.2% (Full Development/Reclamation, Pervious Quarry Floor) to 2.4% (Full Development, Impervious Quarry Floor).

These estimated changes are minimal and within the anticipated range of seasonal variance. Based on the results of the water balance assessment it is anticipated that the proposed quarry expansion will have a negligible impact on the local hydrological regime.

The results of the water balance analysis will be used to form the basis of further analysis and design of surface water management infrastructure at the Quarry in the future. It is anticipated that conditions of any Environmental Assessment approval issued for the proposed quarry expansion will require a detailed surface monitoring plan, groundwater monitoring plan, erosion and sediment control plan, and stormwater management plan. These items will be developed following Environmental Assessment approval for the project, as part of the subsequent Industrial Approval amendment process. The water management and monitoring plans will be used to validate the findings of the water balance assessment.

5.0 CONCLUSION

The Whycocomagh Quarry water balance assessment was prepared to estimate changes in surface water flow and assess the potential impact of the proposed quarry expansion on the local hydrological regime. The methodology used for this water balance assessment is consistent with the approach used recently to assess similar quarry expansion projects undergoing Environmental Assessment.

The estimated changes in runoff and infiltration are minimal and within the anticipated range of seasonal variance. Based on the results of the water balance assessment it is anticipated that the proposed quarry expansion will have a negligible impact on the local hydrological regime. Water management and monitoring plans will be implemented as part of the Industrial Approval process to validate the findings of the water balance assessment.

6.0 REFERENCES

GHD Consultants "Water Balance Analysis for the Proposed Dexter Quarry Located in Sheet Harbour, Nova Scotia".

Lu et al. (2005). "A Comparison of Six Potential Evapotranspiration Methods for Regional Use in the Southeastern United States". Journal of the American Water Resources Association, 41, 621-633.

Ontario Ministry of the Environment. (2003). Stormwater Management Planning and Design Manual.

Climate Normal Data (Data taken from Beddeck and Truro Environment Canada Stations).

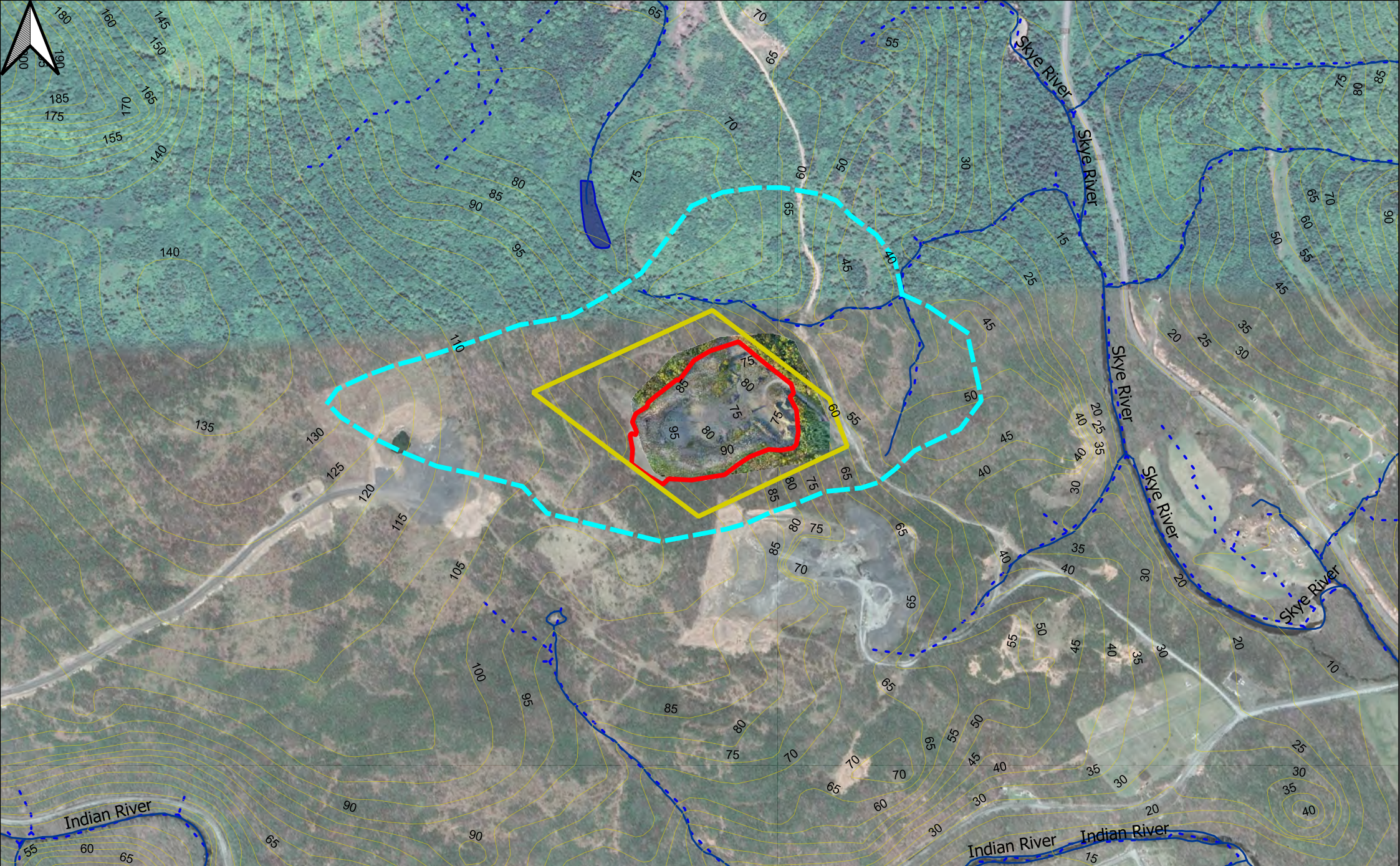






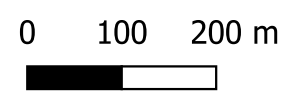


FIGURE 1
WHYCOCOMAGH QUARRY - CATCHMENT AREA
Drone Imagery: October 6, 2020
Sketch Date: July 20, 2021



- Legend**
- | | |
|--|---|
|  Whycomomagh Quarry Current Disturbed Area (4.5-Ha) |  Provincial Mapped Watercourses (1:10,000) |
|  Whycomomagh Quarry EA Expansion Area (10.0-Ha) |  Provincial Mapped Wetlands (1:10,000) |
|  Whycomomagh Quarry Catchment Area (38.0-Ha) |  Flow Accumulation Channels |



APPENDIX 1 - Welshtown Quarry Water Balance Factors

Catchment	Development Stage	Scenario	Total Catchment Area <i>m²</i>	Total Quarry Area in Catchment <i>m²</i>	Land Area ¹		Topography ²			Cover				Soils			Total Infiltration Factor
					Open Water Bodies & Wetlands <i>m²</i>	Land Area <i>m²</i>	Quarry <i>(flat land)</i> <i>m²</i>	Other Slope <i>(hilly land)</i> <i>m²</i>	Area - Ratio Infiltration Factor	Quarry <i>m²</i>	Roads <i>(impervious)</i> <i>m²</i>	Forested <i>(partial woodland)</i> <i>m²</i>	Area - Ratio Infiltration Factor	Quarry <i>m²</i>	Sandy Loam Soil <i>m²</i>	Area - Ratio Infiltration Factor	
Quarry Catchment Area	Existing Conditons	Impervious Quarry Floor	379,900	45,000	0	379,900	45,000	334,900	0.12	45,000	5,000	329,900	0.13	45,000	334,900	0.13	0.386
Quarry Catchment Area	Quarry Full Development	Impervious Quarry Floor	379,900	100,200	0	379,900	100,200	279,700	0.15	100,200	5,000	274,700	0.11	100,200	279,700	0.11	0.372
Quarry Catchment Area	Existing Conditons	Pervious Quarry Floor	379,900	45,000	0	379,900	45,000	334,900	0.12	45,000	5,000	329,900	0.13	45,000	334,900	0.15	0.404
Quarry Catchment Area	Quarry Full Development	Pervious Quarry Floor	379,900	100,200	0	379,900	100,200	279,700	0.15	100,200	5,000	274,700	0.11	100,200	279,700	0.15	0.411
Quarry Catchment Area	Quarry Reclamation	Pervious Quarry Floor	379,900	100,200	0	379,900	100,200	279,700	0.15	100,200	5,000	274,700	0.11	100,200	279,700	0.15	0.411

Infiltration Factors³

Topography		
Flat Land (average slope <0.6 m/km)	0.3	
Rolling Land (average slope 2.8 m/km to 3.8 m/km)	0.2	
Hilly Land (average slope (28 m/km to 47m/km)	0.1	
Soils		
Tight impervious clay	0.1	
Sandy Loam Soil	0.15	
Medium combinations of clay and loam	0.2	
Open sandy loam	0.4	
Cover		
Cultivated land	0.1	
Partial Woodland	0.15	
Woodland	0.2	
Impervious		
Roads, etc.	0	

Assumptions
Quarry floor slope = flat land
Forested area = partial woodland due to historic tree harvisting in the area
Soils = sandy loam soil

¹ Estimated using Google Earth Imagery
² Estimated using provincial 1:10,000 topography data
³ Ontario Ministry of Environment, Conservation and Parks, SWM Planning and Design Manual

APPENDIX G
PUBLIC CONSULTATION DOCUMENTATION

Environmental Assessment Registration Document:
Whycocomagh Quarry Expansion
Stewartdale, Municipality of the County of Inverness
Nova Scotia



January 29, 2021

Native Council of Nova Scotia
129 Truro Heights Road
Truro, Nova Scotia
B6L 1X2

Attn: Chief Lorraine Augustine

**Re: Whycocomagh Quarry Expansion Project, Inverness County
Class 1 Undertaking Under Section 9(1) of the Environmental Assessment Regulations**

This letter is intended to provide early notification regarding the proposed Whycocomagh Quarry Expansion Project (the Project) that Dexter Construction Company Limited (Dexter) intends to register for Environmental Assessment in the summer of 2021, in accordance with Part IV of the *Environment Act*. Through this letter Dexter is seeking early engagement to identify and address potential First Nation's concerns regarding the Project.

Dexter currently operates an existing less than 4-hectare Nova Scotia Environment (NSE) approved aggregate quarry located off Chuggin Road near Whycocomagh, Inverness County, Nova Scotia. The existing quarry has been seasonally operated since the late 1990's and is utilized periodically during the road construction season to provide construction aggregates for local projects as well as Nova Scotia Transportation and Infrastructure Renewal (NSTIR) projects in the area. It is the intent of Dexter to expand the existing quarry to provide additional aggregate reserves to support local infrastructure needs in the future. Other than a proposed increase in the quarry operating footprint, future quarry operations are not anticipated to change in scope or increase in frequency from past use.

Dexter and its environmental consultants are completing various desktop reviews and field studies in support of the Project. Cultural Resource Management Group Ltd. (CRM) has been contracted to undertake an Archaeological Resource Impact Assessment (ARIA) for the Project. The scope of the ARIA includes engaging the Kwi'mu'lw Mawklusuaqn Negotiation Office's Archaeological Research Division to request any information pertaining to traditional or historical Mi'kmaq use of the study area.

Attached is a plan showing the Study Area for this project. The nearest First Nation community to the Project is We'koqma'q First Nation which is located approximately 1 kilometer southwest of the existing quarry.

Dexter will follow up with a second notification letter in the weeks leading up to Project registration with NSE. In the interim, we would be pleased to discuss this project in greater detail with you at your convenience. Please contact the undersigned if you would like to discuss further.

Sincerely,

DEXTER CONSTRUCTION COMPANY LIMITED

Gary Rudolph, P.Eng
Director of Aggregates
grudolph@dexter.ca
902-832-6346



January 29, 2021

We'koqma'q First Nation
P.O. Box 149, 150 Reservation Road
Whycocomagh, NS
B0E 3M0

Attn: Chief Rod Googoo

**Re: Whycocomagh Quarry Expansion Project, Inverness County
Class 1 Undertaking Under Section 9(1) of the Environmental Assessment Regulations**

This letter is intended to provide early notification regarding the proposed Whycocomagh Quarry Expansion Project (the Project) that Dexter Construction Company Limited (Dexter) intends to register for Environmental Assessment in the summer of 2021, in accordance with Part IV of the *Environment Act*. Through this letter Dexter is seeking early engagement to identify and address potential First Nation's concerns regarding the Project.

Dexter currently operates an existing less than 4-hectare Nova Scotia Environment (NSE) approved aggregate quarry located off Chuggin Road near Whycocomagh, Inverness County, Nova Scotia. The existing quarry has been seasonally operated since the late 1990's and is utilized periodically during the road construction season to provide construction aggregates for local projects as well as Nova Scotia Transportation and Infrastructure Renewal (NSTIR) projects in the area. It is the intent of Dexter to expand the existing quarry to provide additional aggregate reserves to support local infrastructure needs in the future. Other than a proposed increase in the quarry operating footprint, future quarry operations are not anticipated to change in scope or increase in frequency from past use.

Dexter and its environmental consultants are completing various desktop reviews and field studies in support of the Project. Cultural Resource Management Group Ltd. (CRM) has been contracted to undertake an Archaeological Resource Impact Assessment (ARIA) for the Project. The scope of the ARIA includes engaging the Kwi'mu'lw Mawklusuaqn Negotiation Office's Archaeological Research Division to request any information pertaining to traditional or historical Mi'kmaq use of the study area.

Attached is a plan showing the Study Area for this project. The nearest First Nation community to the Project is We'koqma'q First Nation which is located approximately 1 kilometer southwest of the existing quarry.

Dexter will follow up with a second notification letter in the weeks leading up to Project registration with NSE. In the interim, we would be pleased to discuss this project in greater detail with you at your convenience. Please contact the undersigned if you would like to discuss further.

Sincerely,

DEXTER CONSTRUCTION COMPANY LIMITED

Gary Rudolph, P.Eng
Director of Aggregates


grudolph@dexter.ca


902-832-6346

Copy: Twila Gaudet, Director of Consultation, KMKNO
Gillian Fielding, Consultation Advisor, OAA

Whycocomagh Quarry

Legend

 EA Study Area

 Existing <4 Ha Permit Area



Google Earth

Image © 2021 CNES / Airbus
© 2020 Google



October 20, 2021

Native Council of Nova Scotia
129 Truro Heights Road
Truro, Nova Scotia
B6L 1X2

Attn: Chief Lorraine Augustine

Re: Whycocomagh Quarry Expansion Project, Inverness County
Class 1 Undertaking Under Section 9(1) of the Environmental Assessment Regulations

Further to our letter of January 29, 2021 regarding the proposed Whycocomagh Quarry Expansion Project (the Project), this letter is to inform you that Dexter Construction Company Limited (Dexter) will be officially registering the Project for Environmental Assessment (EA) on November 3, 2021. A Public Notice accompanying the registration will appear in the Chronicle Herald and Cape Breton Post on November 3, 2021 (copy of the draft Notice attached). Hard copies of the EA Registration Document will be available for review at the Whycocomagh Canada Post Office, Charlene's Bayside Restaurant, and the Nova Scotia Environment (NSE) Regional Office in Port Hawkesbury, Nova Scotia. An electronic copy of the document will be available through the NSE website (<https://www.novascotia.ca/nse/ea/>).

Any questions or comments regarding the Project can be forwarded to Dexter or Ms. Renata Mageste da Silva, NSE EA Coordinator, until December 3, 2021.

In the interim, we would be pleased to meet with you to discuss the Project should you have any questions or concerns. If you would like to schedule a meeting, please contact the undersigned at your convenience.

Sincerely,

DEXTER CONSTRUCTION COMPANY LIMITED

Gary Rudolph, P.Eng
Director of Aggregates

grudolph@dexter.ca
902-832-6346



October 20, 2021

We'koqma'q First Nation
P.O. Box 149, 150 Reservation Road
Whycocomagh, NS
B0E 3M0

Attn: Chief Rod Googoo

Re: Whycocomagh Quarry Expansion Project, Inverness County
Class 1 Undertaking Under Section 9(1) of the Environmental Assessment Regulations

Further to our letter of January 29, 2021 regarding the proposed Whycocomagh Quarry Expansion Project (the Project), this letter is to inform you that Dexter Construction Company Limited (Dexter) will be officially registering the Project for Environmental Assessment (EA) on November 3, 2021. A Public Notice accompanying the registration will appear in the Chronicle Herald and Cape Breton Post on November 3, 2021 (copy of the draft Notice attached). Hard copies of the EA Registration Document will be available for review at the Whycocomagh Canada Post Office, Charlene's Bayside Restaurant, and the Nova Scotia Environment (NSE) Regional Office in Port Hawkesbury, Nova Scotia. An electronic copy of the document will be available through the NSE website (<https://www.novascotia.ca/nse/ea/>).

Any questions or comments regarding the Project can be forwarded to Dexter or Ms. Renata Mageste da Silva, NSE EA Coordinator, until December 3, 2021.

In the interim, we would be pleased to meet with you to discuss the Project should you have any questions or concerns. If you would like to schedule a meeting, please contact the undersigned at your convenience.

Sincerely,

DEXTER CONSTRUCTION COMPANY LIMITED

Gary Rudolph, P.Eng
Director of Aggregates

grudolph@dexter.ca
902-832-6346

Copy: Twila Gaudet, Director of Consultation, KMKNO
 Gillian Fielding, Consultation Advisor, Office of L'Nu Affairs

NOTICE

Registration of Undertaking for Environmental Assessment ENVIRONMENT ACT

This is to advise that on November 3, 2021, Dexter Construction Company Limited registered the Whycocomagh Quarry Expansion Project for environmental assessment, in accordance with Part IV of the *Environment Act*.

The purpose of the proposed undertaking is to expand an existing quarry located at 5505 Whycocomagh Port Hood Road, Churchview, Inverness County, Nova Scotia. The existing quarry has been in operation for over 20 years. The land associated with the expanded quarry will occupy a maximum of 10.0 hectares, which includes the existing quarry footprint. A project life of up to 40 years is expected. The expanded quarry will support continued extraction and production of aggregate products used primarily in the road construction industry in Inverness County. It is expected that the continued use of the quarry will be identical, or very similar, to historic use at the site. The project is anticipated to commence during the 2022 construction season with production volumes of approximately 50,000 tonnes per year during years in which the quarry is active.

Copies of the environmental assessment registration information may be reviewed at the following locations:

- Canada Post, 115 Main Street, Whycocomagh, NS
- Charlene's Bayside Restaurant and Cafe, 9657 NS-105, Whycocomagh, NS
- Nova Scotia Environment, Regional Office: 218 MacSween Street, Suite 12, Port Hawkesbury, NS (Due to COVID-19 protocol, advance scheduling is recommended. Please call 902-625-0791 to schedule a time.)
- NSE EA website (when available) <https://www.novascotia.ca/nse/ea/>

The public is invited to submit written comments to:

Environmental Assessment Branch,
Nova Scotia Environment
P.O. Box 442, Halifax, Nova Scotia B3J 2P8

on or before December 3, 2021 or contact the Department at 902-424-3600, 902-424-6925 (Fax), or e-mail at EA@novascotia.ca.

All comments received from the public consultation will be posted on the department's website for public viewing. In the case of an individual, the address, email and contact information will be removed before being placed on the website. By submitting your comments, you are consenting to the posting of your comments on the department's website.

Published by: Dexter Construction Co. Ltd., 927 Rocky Lake Dr, PO Box 48100, Bedford, NS, B4A 3Z2