Unnamed Watershed

Unnamed Watershed

Salmon River

Dexter Quarry

Kemptown Road

Cross Roads Brook

SW #2

MW No.2

Proposed Quarry Area
2024-2044
(Active Area = 20 hectares)

MW No.1

MW No.3

SW #1

Cross Roads Brook Watershed
(400 hectares)

Cross Roads Brook

Property Boundary (PID #2034 3422)

500 metres

Upper Kemptown Cross Road

## Explanation

- Private Water Well (within 1,000 metres of Quarry)
- Proposed Monitoring Well

Chapman Brothers Construction Ltd.

# Kemptown Quarry

Colchester County, Nova Scotia

Figure #3

Topograhy, Watersheds & Private Wells

August, 2024

## 3.0 Regional Landscape, Topography and Climate

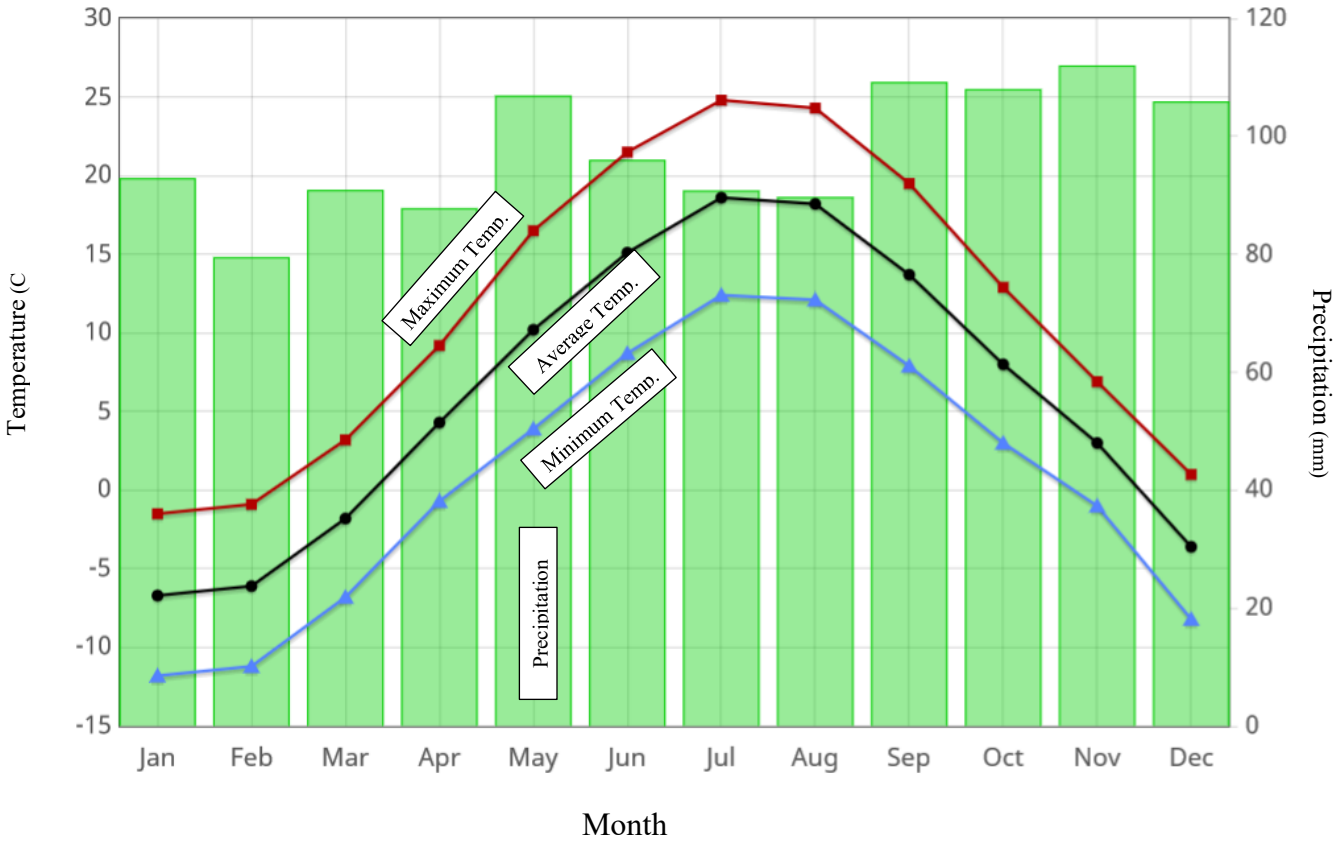
The proposed Kemptown Quarry is located in the east part of the Cobequid Mountain Natural Landscape. This natural landscape is an east-trending, 90 kilometres long, rectangular shaped upland area that reaches maximum elevations of approximately 320 metres. The top of this natural landscape is characterized by a broad, fairly smooth to undulating terrain that is dissected by numerous sub-linear and dendritic watercourses, most of which flow northward and southward from the high elevations.

Climate

The Proposed Kemptown Quarry area has a humid, temperate, continental climate that is modified by its proximity to the Northumberland Strait. The mean annual temperature is 6.8$^{o}$C. The warmest temperatures are generally in July, with a mean of 18$^{o}$C, and the coldest temperatures are in February with a mean of –6$^{o}$C.

Precipitation

The Kemptown Quarry area receives total annual precipitation of 1,000 to 1,300 millimetres with a mean annual figure of 1,165 millimetres. Much of the precipitation and moisture surplus occurs within one distinct wet season from mid-November to mid-March. Snowfall events occur between late November to early April with typical total yearly snowfall accumulations in the order of 3.1 metres. A warming trend from March through April releases the snow pack, and eliminates the frost cover to generate a major surface water runoff and groundwater recharge event from March to May. There is generally a significant dry season that lasts from June to mid-September. The summer season is generally relatively dry with rainfall accumulations of less than 10 centimetres common for the months of June, July and August.




Graphic Illustration #1: Temperature and Precipitation Chart for 1981 to 2010 Canadian Climate Normals, Debert, Nova Scotia (Environment Canda)

## 4.0 Surface Water Resources and Local Drainage

The proposed Kemptown Quarry is located within the Salmon-Debert Primary Watershed and the Salmon River Secondary Watershed (Figures #5 & #6).

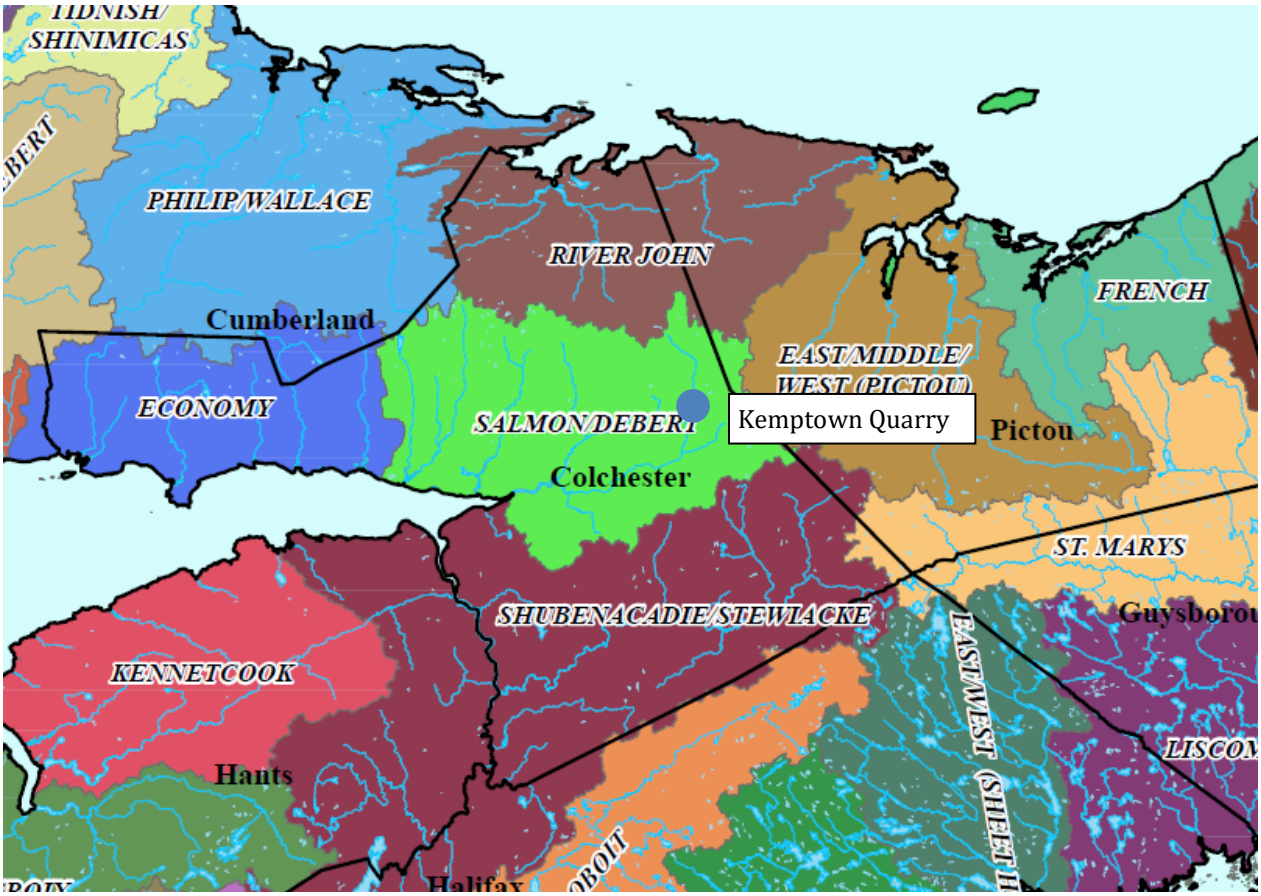



Figure #5 Salmon-Debert Primary Watershed on Primary Watershed Maps of Nova Scotia

The proposed Quarry is located in the upper reaches of the Cross Roads Brook Watershed and several hundred metres west of the main channel of Cross Roads Brook (Figure #3). Local surface water drainage and runoff from the Quarry is by overland flow toward the east ultimately flowing into the main channel of Cross Roads Brook which flows eastward 2.5 kilometres at which point the Brook discharges into Salmon River (Figure #3).

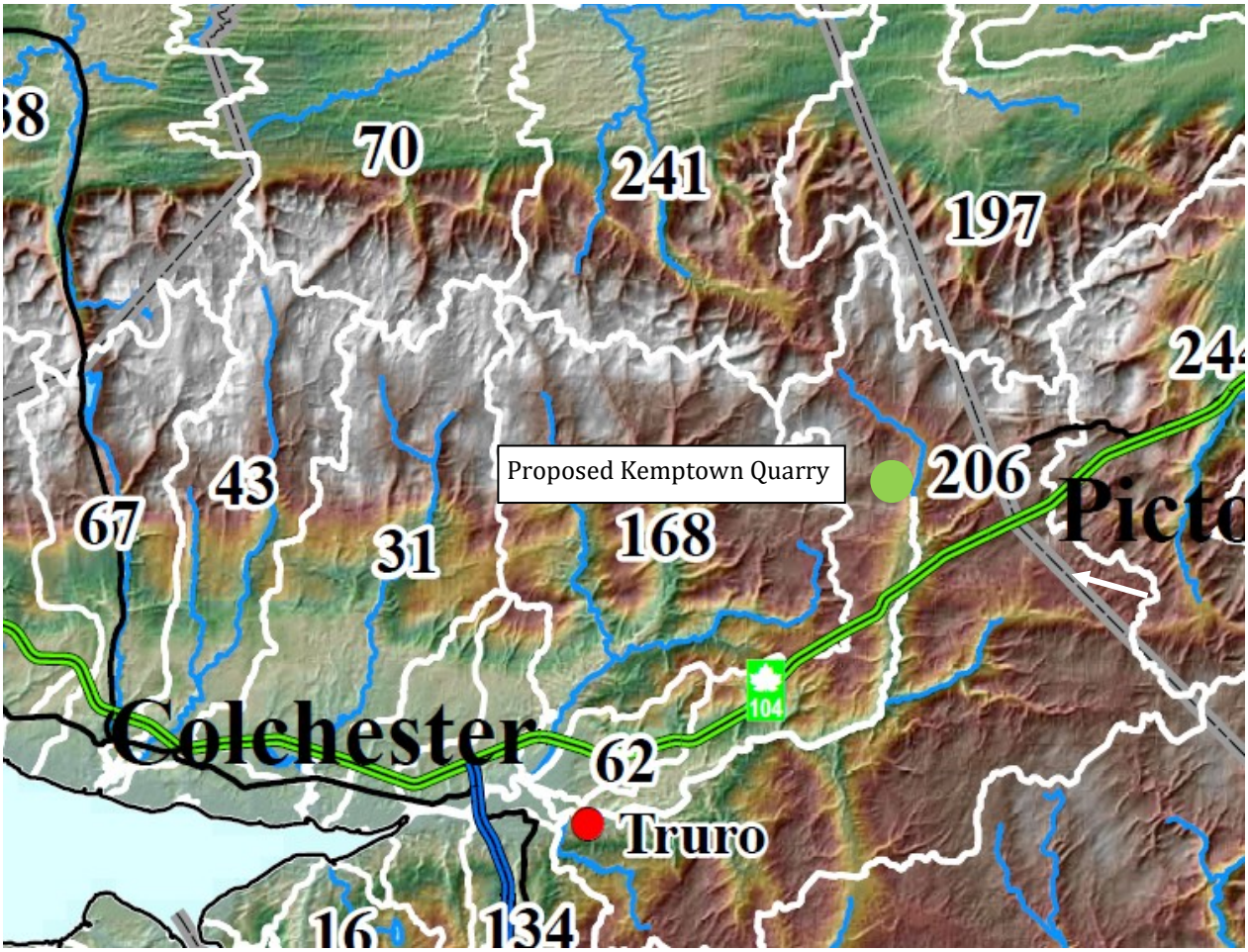



Figure #6 North River Secondary Watershed (#168) on Secondary Watershed Maps of Nova Scotia

Construction of the quarry will result in some changes in local surface water runoff patterns which may affect the Cross Roads Brook Watershed. Exposed surfaces on the quarry floor and on access roads can result in flashy runoff patterns during heavy rainfall and snow melt events. The planned drainage ditches, erosion control berms and the sedimentation ponds will be designed to mitigate these effects.

Chapter 6.0 addresses anticipated changes in surface water runoff and groundwater recharge. Appendix A presents a plan for the management of surface water and groundwater resources.

# 5.0 Hydrogeology of the Quarry Area

## 5.1 Surficial Sediments (Soils)

Soils and Surficial sediments, in the vicinity of the proposed Kemptown Quarry consist of gravely, sandy silt (glacial till) which has been derived from local bedrock sources. In the immediate vicinity of the Kemptown Quarry, the surficial sediments are from 0.5 to 5 metres thick.

## 5.2 Bedrock

Bedrock within the Proposed Kemptown Quarry consists of orange and grey coloured granite which is part of the Salmon River Granite Pluton (Figure #7). These rock-types are crystalline in character and are extensively fractured with several fracture pattern orientations; therefore, groundwater flow is by "fracture flow" throughout the bedrock unit (Figure #6).

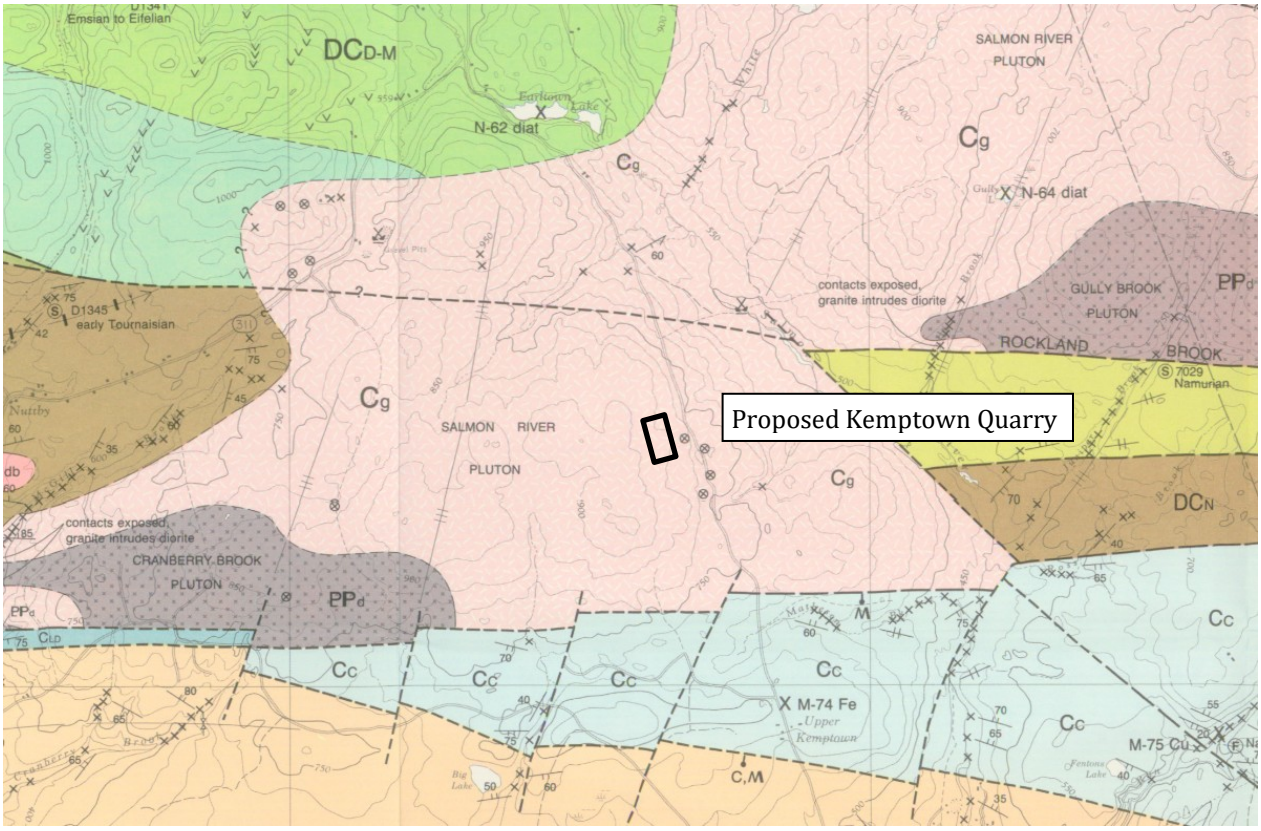



Figure #7 Bedrock Geology Map of the Proposed Kemptown Quarry Area (NSDNR Map #82-09)

## 5.3 Hydrogeology

In the vicinity of the Kemptown Quarry, groundwater flow direction would be expected to be a subdued replica of the topographic gradient which is toward the east.

As part of our field research, we conducted field mapping within several kilometres of the Kemptown Quarry with emphasis on the location of occupied dwellings which are assumed to have private water supply wells. The results of our field mapping indicates there are 19 occupied dwellings wells within 1,000 metres of the proposed quarry.

We researched the Nova Scotia Groundwater Atlas to match drilled well records with occupied dwellings in the area and found records for two wells in the area. Both of these wells have total depths of 60.0 and 80.0 metres and estimated yields of 4 to 6 litres per minute.

# 6.0 Water Balance

## 6.1 Introduction and Methodology

A water balance calculation employs the principle of conservation of mass in a closed system, whereby all water entering a system, from rainfall or snow melt, will be transferred into either evaporation, transpiration, surface water runoff, and changes in underground storage (soil water and groundwater). This equation requires the system to be closed; where it is not closed, such as when surface runoff contributes to a different watershed, this must be taken into account.

The general water balance equation is as follows:

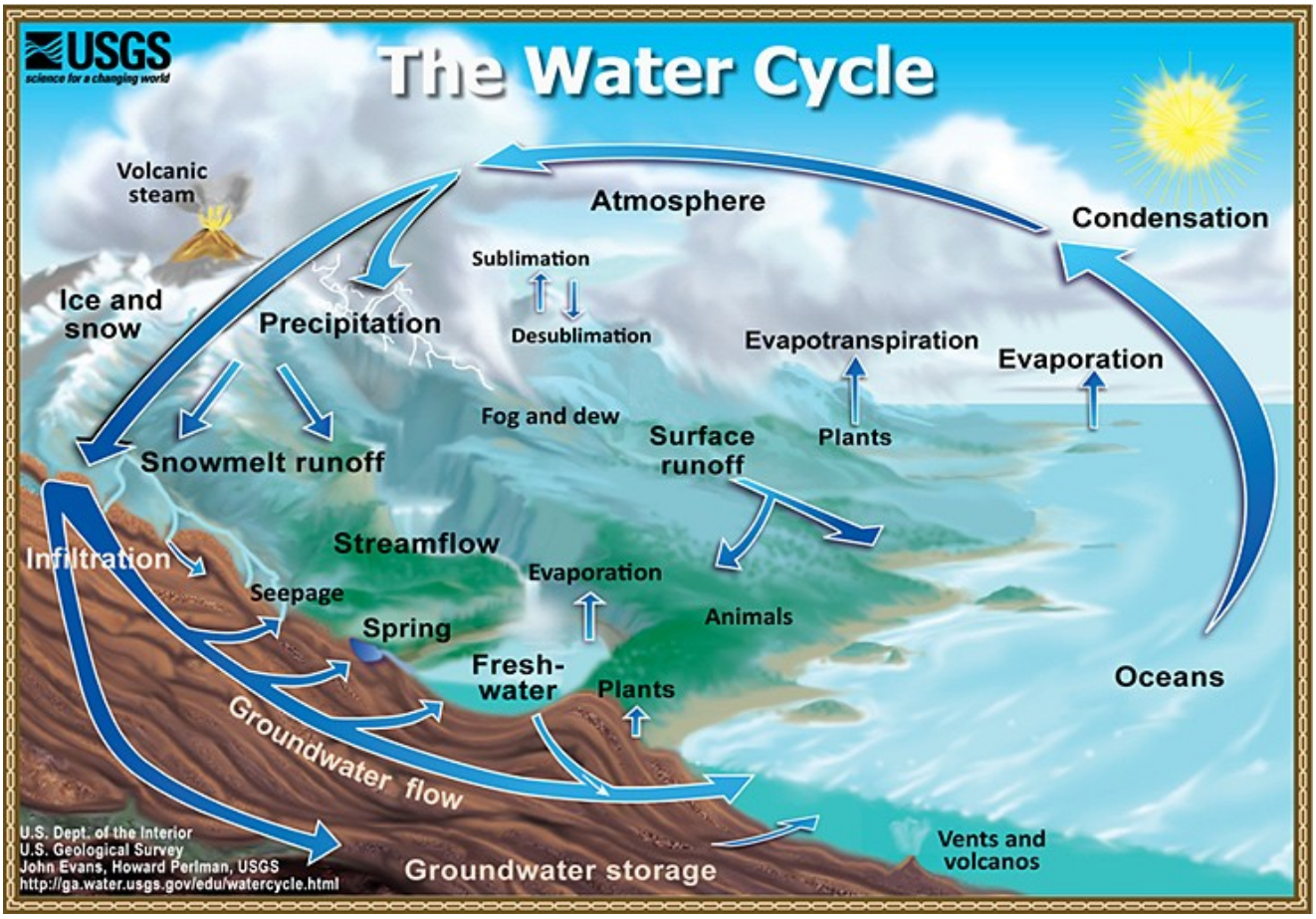
$P = R + ET + \Delta S$ where

P is precipitation
R is streamflow or surface water runoff
ET is evapotranspiration (evaporation and transpiration)
$\Delta S$ is the change in storage of water (soil water and groundwater)

The water balance can be utilized to assess the quantitative effects on surface water and groundwater resources resulting from a change in land use such as residential, industrial or quarry development.

In this report, the focus of the water balance assessment is to estimate changes in surface water flow patterns as a result of changes in land uses related to the proposed expansion of the Kemptown Quarry.

The methodology used in this report is similar to methodologies employed in other technical reports that have been recently submitted for quarry projects in Nova Scotia. We have used the changes in water balance covering the period of 2024 to 2034 as a conceptual indication of the changes that can be anticipated as the development proceeds to the full 40.3 hectares.




Graphic Illustration #2 Schematic Diagram of the Hydrologic Cycle and Water Balance Principle (Unites States Geological Survey, 2009)

For this Water Balance Assessment the following property conditions were analyzed:

1) existing conditions at the Kemptown Quarry (4 hectares area);
2) conditions at 10 hectares of active area;
3) conditions at 20 hectare of active area;
3) conditions at 40 hectares of active area; and
4) conditions after quarry rehabilitation.

Existing conditions include a flat, gravelled quarry area of approximately 4 hectares, nearly flat quarry floor, quarry highwalls, stockpile areas, haulage roads and a site access road.

The water balance was completed using the following inputs:

| | | | |
|---|---|---|---|
| Total Annual Precipitation | = | 1,165 | mm |
| Lake Evaporation (no lakes) | = | 0 | mm |
| Potential Evapotranspiration | = | 524 | mm |
| Infiltration Factor for Watershed | = | 0.28 | |
| Infiltration Factor for Quarry | = | 0.30 | |

As in most quarries in Nova Scotia, the Kemptown Quarry will be progressively rehabilitated to simulate pre-quarrying conditions including the following:

- removal of heavy equipment, weigh scale and associated buildings
- reduction of steep slopes
- overall site grading
- re-vegetation efforts

Surface water 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.

## 6.2 Watershed Mapping

The Provincial 1:10,000 scale maps with a contour interval of 5 metres were used to delineate the watershed catchment area for the Cross Roads Brook Watershed. The existing quarry and proposed quarry expansion area are located in the west part of the Watershed that is approximately 330 hectares in size.

## 6.3 Climate Data

Precipitation and temperature data were collected from the Debert Climate Station (1981- 2010) which is located approximately 40 kilometers southeast of the Kemptown Quarry.

Monthly lake evaporation normals were obtained from the Environment Canada Truro Station (1981-2010). The Truro station is the closest climate station to the Kemptown Quarry that collects lake evaporation data and is located approximately 60 kilometres from the Quarry. Monthly potential evapotranspiration normals were calculated using the Hamon equation (1961) (Lu, et al., 2005).

Table #1

Proposed Kemptown Quarry

Canadian Climate Normals 1981-2010 Station Data

Debert Climate Station, Nova Scotia

| Month of Year | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature (°C) | -6.7 | -6.1 | -1.8 | 4.3 | 10.2 | 15.1 | 18.6 | 18.2 | 13.7 | 8.0 | 3.0 | -3.6 | 6.1 |
| Precipitation (mm) | 92.8 | 79.4 | 90.8 | 87.7 | 106.8 | 95.9 | 90.7 | 89.6 | 109.1 | 107.9 | 111.9 | 105.8 | 1,168.3 |
| Lake Evaporation (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 | 515.0 |
| Pot. Evap. Transpiration ( mm) | 0.0 | 0.0 | 0.0 | 39.3 | 60.9 | 87.0 | 103.5 | 94.6 | 66.7 | 40.9 | 26.6 | 0.0 | 520.0 |

Notes 1) Lake Evaportation were iobtained from the Truro, Nova Scotia Climate Station

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

## 6.4 Infiltration Factors

The infiltration factor employed in the water balance is the most difficult to quantify due to the lack of hydrologic data specific to the Jersey Brook Watershed. As a result, this report utilizes infiltration factor estimates that are published in the Ontario Ministry of Environment, Conservation and Parks (OMECP) Stormwater Management Planning and Design Manual (2003).

From this process, Table #2 provides estimates of infiltration factors for the unaffected part of the Jersey Brook Watershed and the Active Area that have been used in the water balance estimates.

It should be noted the expanded quarry floor and the rehabilitated active area will have an average slope of approximately 1% which will be much less than the current topographic slope of 10%. This change in slope is expected to enhance the infiltration of the Active Area (Table #2).

Table #2

Proposed Kemptown Quarry

Cross Roads Brook Watershed

Infiltration Factor Estimates

| Undisturbed Part of Watershed | | | |
|---|---|---|---|
| Topography | Hilly Land | IF = | 0.08 |
| Sediment - Soil Type | Sandy, Gravelly, Silt (glacial till) | IF = | 0.10 |
| Vegetation Cover | Partial Woodland | IF = | 0.10 |
| Total Intriltration Factor | | | 0.28 |

| Quarry Active Area | | | |
|---|---|---|---|
| Topography | Flat | IF = | 0.20 |
| Sediment - Soil Type | Quarry Floor | IF = | 0.10 |
| Vegetation Cover | None | IF = | 0.00 |
| Total Intriltration Factor | | | 0.30 |

IF = Infiltration Factor

## 6.6 Results of Water Balance Calculations

The Kemptown Quarry water balance calculations have been generated for four (4) levels of quarry development as listed in Section 6.0 and Table #3.

This water balance assessment provides an estimate of the effects on the entire Jersey Brook Watershed as expressed as total annual runoff at the furthest down-gradient discharge location of the watershed (Location A on Figure #3).

Table #3

Proposed Kemptown Quarry

Water Balance Estimates (from 2024 to 2044)

| Conditions | Watershed Area hectares | Active Area of Quarry hectares | Unaffected Watershed | Available Water cubic metres | Potential ET (520 mm) cubic metres | Infiltration Non-Quarry cubic metres | Infiltration Quarry Area cubic metres | Surface Water Runoff Entire Watershed cubic metres | Change in Surface Runoff % |
|---|---|---|---|---|---|---|---|---|---|
| Existing Conditions | 400 | 0 | 400 | 4,672,000 | 2,429,440 | 1,308,160 | 0 | 934,400 | 0.0 |
| Early Quarry Development | 400 | 5 | 395 | 4,672,000 | 2,429,440 | 1,291,808 | 17,520 | 933,232 | -0.1 |
| Mid-Quarry Development | 400 | 10 | 390 | 4,672,000 | 2,429,440 | 1,275,456 | 35,040 | 932,064 | -0.3 |
| Full Quarry Development | 400 | 20 | 380 | 4,672,000 | 2,429,440 | 1,242,752 | 70,080 | 929,728 | -0.5 |
| Reclaimed Quarry | 400 | 20 | 380 | 4,672,000 | 2,429,440 | 1,242,752 | 70,080 | 929,728 | |

Notes 1) Total annual precipitation = 1,168 mmm (1.168 metres)

2) Potential ET = Potential Evapotranspiration

The results of the water balance illustrates the change in surface water runoff at the discharge location of Cross Roads Brook into Salmon River will be from -0.1% to -0.5 %. These changes to runoff and streamflow in Cross Roads Brook are not expected to have significant adverse effects on surface water resources.

# 7.0 Summary and Recommendations

## 7.1 Surface Water Resources

Summary

The proposed Quarry is located in the upper reaches of the Cross Roads Brook Watershed and several hundred metres west of the main channel of Cross Roads Brook (Figure #3). Local surface water drainage and runoff from the Quarry is by overland flow toward the east ultimately flowing into the main channel of Cross Roads Brook which flows eastward for 2.5 kilometres at which point the Brook discharges into Salmon River (Figure #3).

The results of the water balance illustrates the change in surface water runoff at the discharge location of Cross Roads Brook into Salmon River will be from -0.1% to -0.5 %. These changes to runoff and streamflow in Cross Roads Brook are not expected to have significant adverse effects on surface water resources.

Recommendations

A plan for monitoring and documenting site conditions in relation to surface waters will be developed in collaboration with NSECC. These plans will include augmenting existing monitoring to fulfill requirements in the industrial Approval for the Kemptown Quarry. Such a plan might include periodic site visits by a qualified professional, surface water quality monitoring and documenting and mitigating effects of high streamflow events.

Our preliminary recommendations for surface water quality monitoring is to establish two (2) water quality monitoring locations; one at the upper reaches of Cross Roads Brook (SW#1) and one at the lower reaches of Cross Roads Brook (SW#2)(Figure #3).

## 7.2 Groundwater Resources

Summary

Bedrock within the Kemptown Quarry consists of orange and grey coloured granite. These rock-types are crystalline in character and are extensively fractured with several fracture pattern orientations; therefore, groundwater flow is by “fracture flow” throughout the bedrock unit.

In the vicinity of the Kemptown Quarry, groundwater flow direction would be expected to be a subdued replica of the topographic gradient which is toward the east.

The results of our field mapping indicates there are 19 occupied dwellings within 1,000 metres of the proposed quarry.

We researched the Nova Scotia Groundwater Atlas to match drilled well records with occupied dwellings in the area and found records for two wells in the area. Both of these wells have total depths of 60.0 and 80.0 meters and estimated yields of 4 to 6 litres per minute.

Recommendations

Considering the Kemptown Quarry is to operate above the watertable, we recommend three (3) groundwater monitoring wells be constructed at the locations shown on Figure #3. These wells will be utilized to determine the seasonal elevation of the watertable, direction of groundwater flow, assist with quarry planning and facilitate groundwater quality monitoring to ensure there are no adverse effects on groundwater quality due to the operation of the Kemptown Quarry.

# Appendix A

## Surface Water and Groundwater Management Plan

# Water Management Plan

## Erosion and Sediment Control Plan

Erosion and sediment control within the proposed Kemptown Quarry Active Area (Active Area) is designed in accordance with standard industry practices, with an emphasis on erosion prevention and sediment control. The NSECC Erosion and Sedimentation Control Handbook for Construction Sites will be used as a guide for erosion and sediment control plans implemented within the Active Area. The following ESC measures will be implemented:

1) Surface water flow will be directed around the Active Area using berms and diversion ditches to minimize the amount of surface water runoff flowing over the active areas.

2) The amount of exposed soil and sediment will be kept to a minimum.

3) The quarry floor, equipment setup areas and stockpile locations will be underlain by a layer of gravel.

4) Drainage ditches, swales, and culverts will be used to manage surface water runoff to minimize exposure to roadways, stockpiles, crushing equipment, conveyor belts and other vehicle and equipment traffic.

5) Runoff from exposed and-or unstable slopes will be directed to the Active Area water management infrastructure.

6) Vegetated buffers will be maintained around sensitive environmental receptors such as wetlands and watercourses.

7) Silt fences will be installed between disturbed areas and sensitive environmental receptors, as above.

Water Control Strategies

Surface runoff from precipitation and snow melt events will be managed to reduce erosion, flooding, and sediment transport on downgradient receptors. The following water management strategies will be implemented within the Active Area.

1) The quarry floor will be contoured so that surface water runoff will flow toward the sedimentation pond.

2) Surface water originating near the perimeter of the Active Area will be directed to the surrounding vegetated areas.

3) Erosion and sedimentation control measures will be implemented to reduce erosion, flooding, and sediment loading on downgradient surface water receptors.

4) A sedimentation pond will be constructed in the eastern part of the active area to collect and temporarily retain surface water prior to discharge.

5) The results of surface water monitoring will be used to assess the effectiveness of the sedimentation pond and to assess possible needed changes to the sedimentation pond capacity.

6) During periods of quarry activity, water management controls will be inspected on a regular basis. Special attention will be exercised during periods of heavy rainfall and snow melt events.

## Operational Procedures

### Pumping Requirements

The quarry excavation will not exceed a depth of at least 1 metre above the highest seasonal depth of the watertable. Therefore, pumping will not be required and providing for the design of the quarry floor, pumping of retained surface water will not be required.

### Dust Suppression Water Usage

When required, water spray will be used for dust suppression within the Active Area to reduce the accumulation of dust on unpaved roads and work areas. Water for dust control will typically be drawn from sedimentation ponds

### Aggregate Washing

If aggregate washing is required it will be conducted using water drawn from the sedimentation ponds in a closed loop system that will allow all wash water to be retained within the Active Area. The wash water will be directed to the settling ponds and re-used for aggregate washing.

## Water Quality Monitoring Plan

### Surface Water Quality Monitoring

Surface water quality monitoring will be conducted as per the Terms and Conditions of the Industrial Approval. The following recommended surface water monitoring measures are intended to assess the effectiveness of environmental controls within the Active Area and assess any changes in surface water quality around the Active Area.

Considering the proposed Quarry is immediately to the west, and up-gradient, of the headwaters of Cross Roads Brook, there are no locations that would serve as true up-gradient. As a result, we propose to maintain two (2), downgradient locations for surface water monitoring as shown on Figure #3. It is proposed that surface water quality monitoring be conducted on a schedule listed in Table #1.

Table #1

Kemptown Quarry

Summary of Water Quality Monitoring

Surface Water

| Monitoring Location | | Monitoring Frequency | Monitoring Parameters |
|---|---|---|---|
| SW #1 | Downstream | Spring & Fall (Year 1-2) | general chemistry + trace metals |
| | | Fall (Year 2+) | general chemistry + trace metals |
| SW #2 | Downstream | Spring & Fall (Year 1-2) | general chemistry + trace metals |
| | | Fall (Year 2+) | general chemistry + trace metals |
| | | | |

## Recommended Groundwater Monitoring Plan

We recommend that groundwater quality monitoring be conducted on a twice-annual basis for two years for baseline data to be established, and then annually thereafter as summarized in Table #3.

Table #3

Kemptown Quarry

Summary of Water Quality Monitoring

Groundwater

| Monitoring Location | | Monitoring Frequency | Monitoring Parameters |
|---|---|---|---|
| MW No.1 | Up Gradient (background) | Spring & Fall (Year 1-2) | water level, general chemistry + trace metals |
| | | Fall (Year 2+) | water level, general chemistry + trace metals |
| MW No.2 | Down Gradient | Spring & Fall (Year 1-2) | water level, general chemistry + trace metals |
| | | Fall (Year 2+) | water level, general chemistry + trace metals |
| MW No.3 | Down Gradient | Spring & Fall (Year 1-2) | water level, general chemistry + trace metals |
| | | Fall (Year 2+) | water level, general chemistry + trace metals |

## Network Action Thresholds (Triggers)

After construction of the recommended monitoring wells, collection and normal analyses of groundwater samples, background groundwater quality will determined. These results will be assessed with respect to the Guidelines for Drinking Water, the Nova Scotia Tier 1 EQS for Groundwater at a Potable Site and our recommendations for threshold concentrations of these parameters over which “significant adverse effects to groundwater quality” is suspected.

In the event significant adverse effects on groundwater resources are determined to exist from routine, groundwater quality monitoring, the following procedures will be followed:

1) The complete historical water quality record will be reviewed and an estimate of the horizontal and vertical extent of the plume will be determined on the basis of the existing monitoring wells.

2) Additional monitoring wells will be constructed if needed. Water samples will be collected from the new wells and analyzed for the comprehensive suite of parameters.

3) A risk assessment will be conducted with a focus on the risk of adverse effects on off-Quarry receptors.

4) If remediation is deemed necessary, options for remediating the plume will be presented to management and NSE.

Determination of Adverse Effects on Groundwater Resources

A significant adverse effect on groundwater resources is defined as:

- A significant change in water well yields,
- a deterioration of water quality which results in water quality that exceeds the Guidelines for Canadian Drinking Water Quality from Health Canada.
- damage to the structures of wells from blasting and other vibrations related to the Active Area.
- contamination of wells from road salting related to the Active Area,
- contamination of wells from acidic rock drainage related to the Active Area;
- water level reductions from activities associated with the Active Area.

Mitigation of damage to well structures includes:

- a pre-blast well survey,
- avoidance of blasting within 500 m of residential wells,
- remedial action as necessary to repair or replace damaged wells, and
- providing temporary potable water as needed.

Contingency Plan

In the event a private well owner submits a well performance complaint to Chapman Brothers Construction Ltd. (CBCL) or the Nova Scotia Department of Environment (NSE), the following measures will be taken:

1) NSE will be notified by the CBCL that a well performance complaint has been submitted by a well owner.

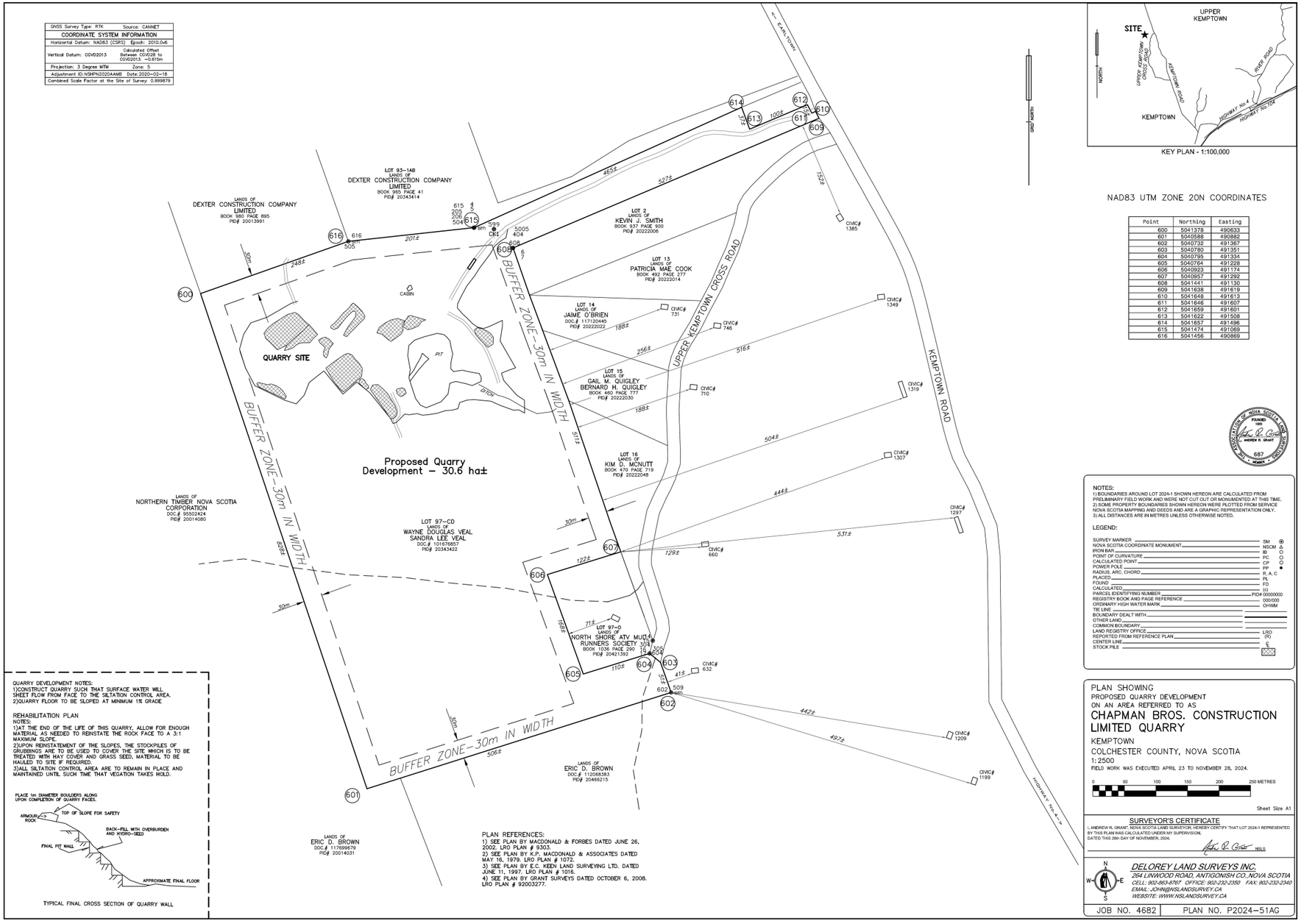
2) A professional engineer or geoscientist will initiate a technical investigation of the well in question within 24 hours of the date and time of the complaint and complete the investigation within 72 hours of the date of the complaint. This investigation will include:

- well construction information
- depth of the pump intake in the well
- depth of the water level in the well
- well performance history
- an inspection of the pump by a licensed pump installer
- borehole camera survey.

3) In the event the technical investigation concludes the adverse effects reported by the well owner are due to the Kemptown Quarry, CBCL will meet with the well owner and a representative of NSE to discuss options for remediation and proceed with the option agreed upon by all parties.

# APPENDIX C
# SITE PLAN AND PROPOSED DEVELOPMENT AREA

Environmental Assessment Registration Document:
Kemptown Quarry Development
Upper Kemptown, Colchester County
Nova Scotia




CHAPMAN BROS CONSTRUCTION LIMITED
KEMPTOWN QUARRY DEVELOPMENT
UPPER KEMPTOWN
COLCHESTER COUNTY, NOVA SCOTIA

# SITE SURVEY & PROPOSED DEVELOPMENT AREA

Map by:
Envirosphere Consultants Limited
Windsor, Nova Scotia
November 2024

Appendix C - Site Plan and Proposed Development Area

# APPENDIX D
# CORPORATE REGISTRATION AND CURRENT STATUS

Environmental Assessment Registration Document:
Kemptown Quarry Development
Upper Kemptown, Colchester County
Nova Scotia

Electronically signed by:
Office of the Registrar of Joint Stock Companies
Date: 14 February 2025 10:07 AST
Location: Nova Scotia, Canada
Contact: rjsc@novascotia.ca

# Certificate of Status

| Registry ID | Name of entity |
| --- | --- |
| 1699018 | CHAPMAN BROS. CONSTRUCTION LTD. |

I hereby certify that according to the records of this office CHAPMAN BROS. CONSTRUCTION LTD. was registered under the Corporations Registration Act and the certificate is currently in force.

Registrar of Joint Stock Companies

February 14, 2025
Date of Issue

NOVA SCOTIA
Registry of Joint Stock Companies

Electronically signed by:
Office of the Registrar of Joint Stock Companies
Date: 04 March 2025 13:11 AST
Location: Nova Scotia, Canada
Contact: rjsc@novascotia.ca

# Profile Report

## Entity details

| | |
|---|---|
| **Information as of** | 04 March 2025 |
| **Registry ID** | 1699018 |
| **Business/Organization Name** | CHAPMAN BROS. CONSTRUCTION LTD. |
| **Incorporation Date** | 01 January 1974 |
| **Annual Return due Date** | 31 January 2026 |
| **Type** | Extra-provincial Corporation Provincial |
| **Status** | Active |
| **Jurisdiction** | Prince Edward Island |
| **Registered Office** | 32 MAPLEWOOD DR, NEW GLASGOW, NOVA SCOTIA, B2H 5Y2, CANADA |
| **Mailing Address** | 32 MAPLEWOOD DR, NEW GLASGOW, NOVA SCOTIA, B2H 5Y2, CANADA |

## Directors and Officers

| Name | Position | Civic Address | Mailing Address |
|---|---|---|---|
| CRAIG CHAPMAN | Director, Secretary, Treasurer | 10 BEACH AVENUE SOURIS PRINCE EDWARD ISLAND C0A 2B0 CANADA | |
| CYRIL J CHAPMAN | Director | 1449 EAST POINT ROAD LITTLE HARBOUR PRINCE EDWARD ISLAND C0A 2B0 CANADA | |
| CYRIL J CHAPMAN | President | 1449 EAST POINT ROAD LITTLE HARBOUR PRINCE EDWARD ISLAND C0A 2B0 CANADA | |
| JEFFREY CHAPMAN | Director, Vice-president | 1413 EAST POINT ROAD LITTLE HARBOUR PRINCE EDWARD ISLAND C0A 2B0 CANADA | |

## Recognized Agent

| Name | Position | Civic Address | Mailing Address |
|---|---|---|---|
| JAMES C. CHAPMAN | Recognized Agent | 32 MAPLEWOOD DRIVE NEW GLASGOW NOVA SCOTIA B2H 5Y2 CANADA | 32 MAPLEWOOD DRIVE NEW GLASGOW NOVA SCOTIA B2H 5Y2 CANADA |

NOVA SCOTIA
Registry of Joint Stock Companies

# Activity

| Activity | Date |
|---|---|
| Extra-provincial Renew My Registration | 31 January 2025 |
| Extra-provincial Renew My Registration | 24 January 2024 |
| Extra-provincial Renew My Registration | 13 January 2023 |
| Extra-provincial Renew My Registration | 07 January 2022 |
| Extra-provincial Renew My Registration | 28 January 2021 |
| Annual Statement Filed | 07 January 2020 |
| Annual Statement Filed | 07 January 2020 |
| Annual Renewal | 15 January 2019 |
| Annual Statement Filed | 05 February 2018 |
| Appoint an Agent | 05 February 2018 |
| Annual Statement Filed | 30 January 2018 |
| Annual Renewal | 30 January 2018 |
| Annual Statement Filed | 26 January 2017 |
| Annual Renewal | 26 January 2017 |
| Annual Statement Filed | 06 January 2016 |
| Annual Renewal | 06 January 2016 |
| Annual Statement Filed | 16 December 2014 |
| Annual Renewal | 16 December 2014 |
| Annual Statement Filed | 03 February 2014 |
| Annual Renewal | 03 February 2014 |
| Annual Renewal | 29 January 2013 |
| Annual Statement Filed | 11 January 2013 |
| Annual Renewal | 22 December 2011 |
| Annual Statement Filed | 22 December 2011 |
| Annual Statement Filed | 25 January 2011 |
| Annual Renewal | 13 December 2010 |
| Annual Renewal | 16 December 2009 |
| Annual Statement Filed | 16 December 2009 |
| Annual Renewal | 17 December 2008 |
| Annual Statement Filed | 17 December 2008 |
| Annual Renewal | 25 February 2008 |
| Annual Renewal | 18 January 2007 |

| | |
|---|---|
| Annual Statement Filed | 18 January 2007 |
| Annual Statement Filed | 18 January 2007 |
| Annual Renewal | 03 January 2006 |
| Reinstated | 31 March 2005 |
| Revoke for Non-Payment | 01 March 1998 |
| Revoked for Non-Payment | 01 March 1998 |
| Reinstated | 28 May 1997 |
| Unappoint Agent | 28 May 1997 |
| Revoke for Non-Payment | 02 March 1997 |
| Revoked for Non-Payment | 02 March 1997 |
| Reinstated | 13 February 1996 |
| Registered Office Change | 13 February 1996 |
| Annual Report Filed | 13 February 1996 |
| Revoked for Non-Payment | 31 January 1996 |
| Change of Directors | 17 January 1991 |
| Registered | 06 March 1987 |
| Agent Filed | 06 March 1987 |
| Incorporated | 01 January 1974 |

# Related Registrations

| Relationship | Name |
|---|---|
| Business Name | MARITIME SAND & GRAVEL |

APPENDIX E
ARIA CULTURAL RESOURCE MANAGEMENT REPORT LETTER
(Nova Scotia Communities, Culture and Heritage, 2023)

Environmental Assessment Registration Document:
Kemptown Quarry Development
Upper Kemptown, Colchester County
Nova Scotia

NOVA SCOTIA
Communities, Culture and Heritage
Culture and Heritage Development

1741 Brunswick Street, 3rd Floor
PO Box 456, STN Central
Halifax, NS B3J 2R5
902-424-8443

December 20, 2023

Laura de Boer
Davis MacIntyre & Associates Limited
109 John Stewart Avenue
Dartmouth, Nova Scotia
B2W 4J7

Dear Laura de Boer,

**RE: Heritage Research Permit Report**
**A2023NS159 – Kemptown Quarry Development**

We have received and reviewed the report on work conducted under the terms of Heritage Research Permit A2023NS159 – Kemptown Quarry Development Project in Colchester County, Nova Scotia in 2023.

The Kemptown Quarry Development project is located in Kemptown, Colchester County, in Nova Scotia. The proposed development area is situated within PID 203422 and will occupy an approximate area of 42 ha. Envirosphere Consultants Ltd., on behalf of Chapman Brothers Construction Ltd., retained Davis MacIntyre & Associates Limited. (DM&A) to conduct an archaeological resource impact assessment (ARIA) for the proposed development area. This ARIA involved Mi'kmaq engagement, background study & predictive modelling, and field reconnaissance.

Background study and predictive modelling show that the general area has been home to the Mi'kmaq for millennia prior to the arrival of Europeans. Euro-Canadian settlement began sparsely prior to 1790 but increased in intensity in 1820 when Scottish immigrants began to settle area. However, field reconnaissance showed the area to have been previously disturbed by past logging activities and current quarrying operations. No areas of moderate to high archaeological potential were identified. No evidence of confirmed or potential archaeological resources were identified during the assessment. The area was ascribed low archaeological potential.

Based on the above, DM&A concluded that no further archaeological mitigation is recommended in association with Heritage Research Permit A2023NS159 – Kemptown Quarry Development. Should development plans change, a qualified archaeologist should be contracted to conduct an additional assessment on any new areas outside the project boundaries identified in this report. In the unlikely event that any archaeological resources are encountered during ground disturbance, and an archaeologist is not already on site, it is required that all activity cease and the Coordinator of Special Places (902-229-3159) be contacted immediately regarding a suitable method of mitigation.

CCH Staff have reviewed the report and find it acceptable as submitted. Please do not hesitate to contact me with any questions or concerns.

Sincerely,

John Cormier
Coordinator, Special Places

# APPENDIX F
# ROCK SULPHUR ANALYSIS

Environmental Assessment Registration Document:
Kemptown Quarry Development
Upper Kemptown, Colchester County
Nova Scotia

DALHOUSIE UNIVERSITY
Inspiring Minds

**Minerals Engineering Laboratory**

Dalhousie University
1360 Barrington Street
5273 DaCosta Row
Chemical Engineering Bldg. Rm. 3305
PO Box 15000, Halifax, NS
B3H 4R2

minerals.engineering.dal.ca
Tel: 902.497.3958
Email: mec@dal.ca

February 5, 2025

Stantec
40 Highfield Park Dr,
Suite 102
Dartmouth, N.S.,
B3A 0A3
Attention: Scott Aldous

Re: Results of analysis on submitted samples. BC Initial Research method.
Acid producing potential based on sulphide sulphur, if available.

Project No.: 121625779.200

| Sample | Wt. % | | | kg H2SO4/t | | Paste |
|---|---|---|---|---|---|---|
| | S (Total) | S(Sulphate) | S(Sulphide) | Acid Prod. Potential | Acid Cons. Ability | pH |
| S25-16C Kemptown Coarse | 0.041 | | | 1.25 | 10.8 | 8.91 |
| S25-16C KemptowDn Coarse Dup. | 0.046 | | | 1.41 | | |

| Reference Sample: | Wt. % |
|---|---|
| Sample | S (Total) |
| KZK-1 (0.80% Sulphur) | 0.797 |

Daniel Chevalier, MASc
Manager, Minerals Engineering Laboratory

# APPENDIX G
# PUBLIC CONSULTATION DOCUMENTATION

Environmental Assessment Registration Document:
Kemptown Quarry Development
Upper Kemptown, Colchester County
Nova Scotia

**Kemptown Quarry Environmental Assessment - Stakeholder Engagement Summary**

as of March 6th, 2025

| Stakeholder | Description of Engagement | Summary of Engagement | Concerns Identified | Concerns Addressed |
|---|---|---|---|---|
| **Sipekne'katik First Nation**<br>Chief Michelle Glasgow | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• Responded with form to be filled out for Jamie Chapman. | • No concerns received to date | N/A |
| | January 21st, 2025 - Phone conversation | • Contacted Marine Courtois (Sipekne'katik Consultation Department) to discuss the Sipekne'Katik Governance Initiative, in relation to information we submitted on the project. Emails were also exchanged to clarify Sipekne'Katik's position on consultation. | | |
| | January 22nd, 2025- Phone Conversation | • A representative from Sipekne'Katik Governance Initiative (SGI) was contacted via phone call to discuss weather or not the project would require a formal consultation process.<br>• A letter was sent to the representative on January 22 outlining the work that has already been done.<br>• It was decided that engaging in a formal consultation process was not necessary as the project location is outside their usual territory. | | |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | | |
| **Millbrook Valley First Nation**<br>Chief Bob Gloade | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• No response received. | • No concerns received to date | N/A |
| | January 30th, 2025- Phone conversation | • Reception of band office contacted to set up meeting to discuss quarry development project<br>• Project is not located in an area they work within.<br>• Appointed to economic development director- email sent. | | |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | • No concerns received to date | N/A |
| **Pictou Landing First Nation**<br>Tamara Young | January 30th, 2025- Phone conversation | • Reception of band office contacted to set up meeting to discuss quarry development project<br>• Took information to pass along to appropriate personnel- will be contacting Envirosphere in the next couple days to set up meeting. | • No concerns received to date | N/A |
| | February 6th, 2025- Email engagement | • Follow up email to previous conversation<br>• Email reply with contact information for the CAO of PLFN. | • No concerns received to date | N/A |
| | February11th, 2025- Phone conversation | • Spoke with CAO of PLFN, said they have passed my information along to the chief and waiting on their reply to see if they want to move forward with consultation. | • No concerns received to date | N/A |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | • No concerns received to date | N/A |
| **Kwilmu'kw Maw-klusuaqn Negotiation Office**<br>Ms. Twila Gaudet | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• No response received. | • No concerns received to date | N/A |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | | |
| | January 30th, 2025- Phone conversation | • Left message with band office administration voicemail to set up meeting to discuss quarry development project. | | |
| **Native Council of Nova Scotia**<br>Chief Loraine Augustine | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• No response received. | • No concerns received to date | N/A |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | | |
| **Office of L'nu Affairs**<br>Ms. Beata Dera<br>Director of Consultation | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• No response received. | • No concerns received to date | N/A |
| | February 5th, 2025- Phone conversation | • Contacted Ms Clair Riley of Nova Scotia Office of L'Nu Affairs concerning relationships of the province with Mi'Kmaq First Nations and requirements for consultation. | | |
| | March 6th, 2025 Notification Letter – sent via email | •Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss. | | |
| **Local Community - Elected Officials**<br>Tom Taggart,<br>MLA Colchester County | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• Emil correspondence stating he will be attending the public consultation meeting. | • No concerns received to date | N/A |
| | March 6th, 2025 Notification Letter – sent via email | • Notification letter, including EA registration date, copy of draft public notice and publish locations, location of hard and electronic copies available for review, deadline for submission of comments, offer to meet to discuss | | |

| | | | | |
|---|---|---|---|---|
| **Local Community - Elected Officials**<br><br>Christine Blair- Mayor of Municipality of Colchester<br>Lisa Patton, Councilor - District 8<br>Marie Benoit, Councilor - District 9<br>Sherry Martell, Councilor District 7 | November 19th, 2024 - Early Engagement Letter. | • Early engagement letter, including brief description of project and anticipated timeline, and offer to discuss the project.<br>• Emil correspondence stating a representative the county of Colchester will be attending the public consultation meeting. | No concerns received to date | N/A |
| | December 11th, 2024- Public Consultation Meeting | • No concerns about the quarry workings / do not anticipate any concerns about expansion.<br>• Lisa Patton encouraged the locals in the rea to team up together and submit tickets into DPW about fixing the condition of the roads<br>• Tom Taggart suggested to the local community to get together again to discuss further on the road issue | | |
| **Local Community - Resident** Speaker #1 | December 11th, 2024- Public Consultation Meeting | • Concerned with the noise associated with the quarry workings (i.e. trucks, crushers, asphalt plant) on evenings, nights, and weekends.<br>• Dust associated with trucks driving on the gravel road (Kemptown Road).<br>• Quarry trucks and asphalt plant are noisy.<br>• Doesn't want any quarries on Kemptown Road. | Dust associated with Traveling trucks<br><br>Noise associated with quarry workings | Noise complaint from DPW, Jamie Chapman shut down overnight operations and only goes until 8-9pm.<br><br>Chapman Bros. is currently working on building a berm around working quarry pit to try and mitigate the noise that is associated with quarry workings. |
| **Local Community - Resident** Speaker #2 | December 11th, 2024- Public Consultation Meeting | • Noise is the biggest concern, followed by the fumes from asphalt plant.<br>• Noise associated with the 24- hour operations use to keep them up all hours of the night but has acknowledged that 24-hour operations have ceased.<br>• Dump trucks from the quarry speed on Kemptown Road. | Truck speed<br><br>Noise associated with quarry working<br><br>Asphalt plant fumes | Jamie Chapman suggested he implement signage around his quarry to tell drivers to slow down.<br><br>Chapman Bros. is currently working on building a berm around working quarry pit to try and mitigate the noise that is associated with quarry workings. |
| **Local Community - Resident** Speaker #3 | December 11th, 2024- Public Consultation Meeting | • Concerned about blasting at the quarry. Dexter previously had come by their place and did sensor testing on their well, was wondering if Chapman Bros. have done the same.<br>• Member of the community that was involved with the sensor testing spoke up to confirmed that Chapman Bros. had conducted the testing necessary for blasting near residential wells. | Blasting associated with quarry workings | Jamie Chapman had confirmed that a third party was hired to conduct well sensor testing for certain houses surrounding the quarry |
| **Local Community - Resident** Speaker #4 | December 11th, 2024- Public Consultation Meeting | • Had questions on who to contact if their well was to be affected by the blasting and how to ensure they are overed if anything was to happen to their water supply.<br>• Jamie Chapman suggested to contact environment because they hold quarries accountable for things like this.<br>• Suggested that a community liaison committee is started so that concerns like this are relayed directly to Chapman Bros. | Blasting associated with quarry workings. | N/A |
| **Local Community - Resident** Speaker #5 | December 11th, 2024- Public Consultation Meeting | • Resident wants to see Kemptown Road get paved as it is in terrible shape from all the traffic along with heavy dump trucks coming from both quarries.<br>• Would like to be notified when blasting is to occur. | Road conditions<br><br>Notification for blasting | Jamie Chapman suggested that Chapman Bros could start posting in a local Facebook group to notify the local community of when blasting is going to occur. |
| **Local Community - Resident** Speaker #6 | December 11th, 2024- Public Consultation Meeting | • Concerned if quarry operations could impact their drinking water source for their well- well is fed by a river that has the headwater of the stream starting on the quarry property<br>• Kemptown road is also an issue, but recognizes that the possibility of it getting paved are slim. If the road can't be paved, they want the road maintained at least during the busy months. | Road conditions<br>Impact on drinking water | Was suggested to this resident that if color, odor, or taste change in their drinking water to get it tested- also suggested to get a test done before anything happens to have a baseline. |
| **Local Community - Resident** Speaker #7 | December 11th, 2024- Public Consultation Meeting | • Concerned about the dust that the dump trucks create when driving on the gravel road (Kemptown Road).<br>• Suggested that Chapman Bros. uses a water truck during the busy seasons to help mitigate the dust that comes off the road- others agreed. | Dust from quarry trucks driving on Kemptown Road | N/A |
| **Local Community - Resident** Speaker #8 | December 11th, 2024- Public Consultation Meeting | • Concerned of the percentage of silica in the gravel that is used on the road<br>• Patrick Stewart responded with resident's concern of silica in gravel- heath Canada doesn't acknowledge that dust from gravel roads is a health concern- not going to cause cancer. | Dust from quarry trucks traveling on gravel road (Kemptown Road) | N/A |
| **Local Community - Resident** Speaker #9 | December 11th, 2024- Public Consultation Meeting | • Expressed that locals in the area already feel as if they were wronged by industry in the past- suggested that a written statement is issued by Chapman Bros. that states how they are going to help fix any issues that arise that are associated with quarry workings. | No concerns received to date | N/A |
| **Local Community - Resident** Speaker #10 | December 11th, 2024- Public Consultation Meeting | • Concerned as to why the local community was not consulted before work started at the quarry – was informed that this is not the usual process as Chapman Bros. were granted a temporary permit to get aggregate to the province to build roads.<br>• Is interested in if there was any investigation done on abandoned mines as Kemptown is built on old mine shafts and is wondering how blasting effects the old mine shafts under Kemptown- abandoned mines were looked at as apart of the EA process.<br>• Concerned about the dust that is created by the dump trucks traveling on the gravel road (Kemptown Road)- says its hard for residents to enjoy their patios with all the dust that gets kicked up. | Dust from quarry trucks driving on Kemptown Road<br><br>Mine shafts in the area | N/A |

# Kemptown Quarry Development Project

***Chapman Brothers Construction Limited is a construction company based in Souris, PEI, and New Glasgow, Nova Scotia, and operates aggregate quarries throughout Nova Scotia. The company currently operates a small aggregate quarry along Kemptown Road in the Upper Kemptown area of Colchester County.***

The quarry, which was opened in 2023 under a temporary operating permit, has been a source of aggregate used for recent road construction in Colchester County. The Kemptown Quarry provides an important source of raw materials for many types of projects, and is a source of employment in the area. The quarry will eventually supply projects both locally and in other parts of Nova Scotia.

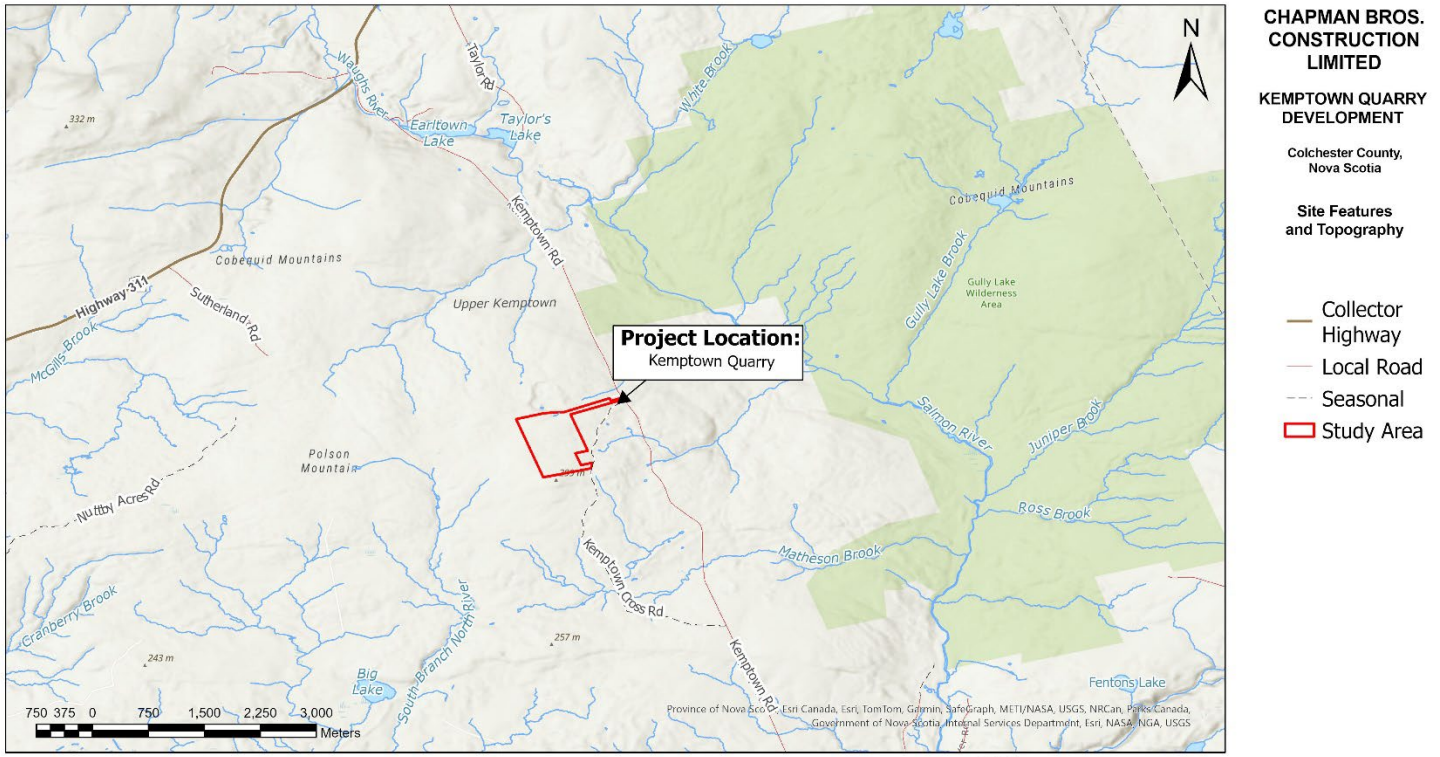
Chapman Bros. wishes to continue to operate the Kemptown Quarry until it reaches a maximum size of up to 30.0 ha in about 50 years. To do this, it will shortly be submitting an Environmental Assessment Registration for a Class I undertaking under the *Environment Act* to Nova Scotia Environment and Climate Change to demonstrate that the project will have minimal environmental impacts.

An environmental assessment conducted by Chapman Brothers Construction in 2023 and 2024 determined that no special ecological areas, watercourses, or wetlands will be impacted by the project. The assessment reviewed all biological, physical, socioeconomic, and archaeological features as well as significance to the Mi'kmaq, and determined that no significant impacts would occur.

Registration and the environmental assessment submission for the Kemptown Quarry is planned for early spring 2025.

*Views of Chapman Bros. Kemptown Quarry.*


**Contact:**
*Jamie Chapman*
*Phone: (902)- 969- 9556*
*Fax: (902)- 687 -3545*
*Email: jamie.chapman@chapmanbros.ca*




**CHAPMAN BROS. CONSTRUCTION LIMITED**

**KEMPTOWN QUARRY DEVELOPMENT**

**Colchester County, Nova Scotia**

**Site Features and Topography**

- Collector Highway
- Local Road
- Seasonal
- Study Area

Map by:
Envirosphere Consultants Limited.
Windsor, Nova Scotia, May 2024

CHAPMAN BROS. CONSTRUCTION LIMITED

Map A-1