



**MUNICIPAL ENTERPRISES LIMITED  
GRANITE VILLAGE QUARRY EXPANSION,  
EAST PORT L'HEBERT, QUEENS COUNTY  
NOVA SCOTIA**

**Registration Document for a Class 1 Undertaking Under Section 9 (1)  
of the Nova Scotia Environment Assessment Regulations**

**MARCH 2023**

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## 1.0 INTRODUCTION

Municipal Enterprises Limited (herein after referred to as “MEL”) of Bedford, Nova Scotia is proposing to expand the existing Granite Village aggregate quarry located between Port Mouton and Sable River on the south shore of Nova Scotia. The civic address of the quarry is 11260 Highway 103, East Port L’Hebert, Queens County, Nova Scotia. The quarry is currently operating under an Industrial Approval (IA) for a quarry of less than four (4) hectares. An approval to expand the quarry is required under the Nova Scotia Environmental Assessment Regulations. The registration of this Environmental Assessment (“EA”) is in response to Schedule A of the Environmental Assessment Regulations, Undertaking B.2., “*A pit or quarry that is larger than 4 ha. in area for extracting building or construction stone.*”

MEL is a private Canadian company. It is incorporated under the laws of Nova Scotia and registered to do business in Nova Scotia under the Nova Scotia Corporations Registration Act. MEL’s Company Profile Report from the Nova Scotia Registry of Joint Stock Companies is attached in **Appendix A** “Property Information.” Municipal Enterprises Limited is a subsidiary within the Municipal Group of Companies and is the parent company of Dexter Construction Company Limited. Dexter Construction Company Limited (herein after referred to as “Dexter”) may be referred to within the appendices.

### Proponent Address:

927 Rocky Lake Drive,  
P.O. Box 48100  
Bedford, NS, B4A 3Z2  
Phone: 902-835-3381

### Proponent Contact:

Gary Rudolph, P. Eng.  
927 Rocky Lake Drive,  
P. O. Box 48100  
Bedford, NS, B4A 3Z2  
Phone: 902-835-3381

### Consultant Contact:

Mr. J. H. Fraser, M. A. Sc., P. Geo.  
Consulting Hydrogeologist  
Phone: 772-812-1981 (Cell)

The Granite Village quarry operates under an existing Nova Scotia Environment and Climate Change (NSECC) Industrial Approval (Approval No. 2003-035824-R01), which has a current expiry date of April 2, 2024. A copy of the Industrial Approval (NSE File # 92100-30) is also attached in **Appendix A** “Property Information”.

## 2.0 THE UNDERTAKING

### 2.1 Description of the Undertaking

MEL proposes to expand its existing Granite Village quarry to produce aggregate, primarily used in the local highway and construction industry. The proposed undertaking (“*the quarry*”) involves the expansion of an existing Nova Scotia Environment and Climate Change (NSECC) approved

quarry from a less than four-hectare quarry to an 8.0-hectare quarry. Other than the proposed increase in size, it is expected that continued use of the quarry will be identical, or very similar, to historic use of the site. A plan showing the existing NSECC approved quarry permit area is included in **Appendix A**. The 8.0-hectare boundary of the proposed quarry expansion area are illustrated in **Appendix B**.

## 2.2 Location

The quarry is located on Company owned (Municipal Enterprises Limited) land (12.3 hectares - PID# 70228531) off Highway 103 in East Port L'Hebert, Queens County, Nova Scotia, NAD83 UTM ZONE 20, 4860429 Northing, 341640 Easting. The site is shown in **Figures 1 & 2 (below) and Drawing 1, Appendix B**). There is no designated Municipal zoning in this area of East Port L'Hebert / Queens County.

**Figure 1 – Project Location.**



**Figure 2 – Site Location and Adjacent Land Use.**



### 3.0 SCOPE OF THE UNDERTAKING

MEL intends to expand the existing Granite Village quarry for the continuing purpose of extracting and supplying aggregate for the local construction industry. Other than the proposed increase in size, it is expected that continued use of the quarry will be identical, or very similar, to historic use of the site.

The existing quarry was originally developed by Dexter in approximately 2003 and has been operated as a NSECC approved quarry since that time. A working highwall has been developed in the western portion of the property, advancing to the east. The site is operated periodically during the road construction season to provide construction aggregates for local projects as well as Nova Scotia Department of Public Works (NSDPW) projects in the area. The quarry is currently operating under a NSECC Industrial Approval (2003-035824-R01) for a less than four-hectare quarry. The scope of this application is for expansion of the existing quarry to a maximum 8.0-hectare area. The existing active area includes a working highwall, stockpiled overburden, a staging area for a portable crushing spread and/or a portable asphalt plant (with separate a NSECC approval), stockpiling areas, and site infrastructure including a temporary scale house and truck scale. During past operations, Dexter has extracted an average of approximately 25,000

to 50,000 tonnes of aggregate per year from the quarry during years in which the quarry was active. There are no off-site related support facilities, other than the provincial highway network.

It is MEL's intent to continue quarry operations on the property. It is anticipated that future operations will involve the extraction of up to 50,000 tonnes/year during years in which the quarry is active. However, the annual quantity may vary depending on local demand and associated project requirements.

### **3.1 Purpose/Need of the Undertaking**

MEL proposes to expand the existing Granite Village quarry to produce aggregate, primarily used in the road and local construction industry. The primary benefit will be to the people of Nova Scotia via the continued construction and maintenance of the Provincial highway system.

### **3.2 Consideration of Alternatives**

Quarries are established where quality aggregate reserves are identified, and applicable environmental and logistical considerations are satisfied. MEL maintains a strategic network of NSECC approved aggregate quarries around the province to support local infrastructure projects. The development of an aggregate quarry is a significant asset to the local community. An alternative to the proposed quarry expansion is to develop a new quarry nearby. Considering quality, environmental, and logistical constraints, it is preferred to proceed with an expansion of the existing quarry rather than the development of a new quarry nearby.

MEL operates rock quarries throughout Nova Scotia and Atlantic Canada and uses modern industry standard methodologies in all phases of the extraction, processing, and delivery processes. Alternative processes are always being considered in terms of their efficiency, cost effectiveness and environmental mitigation advantages. Operations at the Granite Village quarry will be assessed on an on-going basis to ensure that the best available techniques are being utilized in all phases of day-to-day operations.

### **3.3 Scope of the Environmental Assessment**

The scope of the environmental assessment is in keeping with the NSECC document entitled "Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia" as well as MEL's experience with respect to similar projects over the past several decades. The NSECC guidance document states that an "Environmental Assessment (EA) is a planning and decision-making tool used to promote sustainable development. By predicting and evaluating the environmental effects of an undertaking before it begins there is the opportunity to mitigate potential impacts of the undertaking on the environment".

The scope also takes into consideration that the quarry is, at present, operational, and subject to an existing Industrial Approval (IA) (**Appendix A**). It is noted that the existing IA includes conditions related to operational sound levels, separation distances, particulate emissions, surface water quality, groundwater management, blasting, reclamation, regulatory reporting as well as site-specific conditions. It is understood that prior to quarry expansion, the existing IA will be amended based on the results derived from the various studies and assessments that form this EA, and potential EA Approval. The amended IA will outline the operational requirements of the future quarry operation.



It is also noted that the proposed quarry expansion will not change the scope of operations at the site. Other than the proposed increase in area, it is expected that continued use of the quarry will be identical, or very similar, to historic use of the site

The following sections of this document provide a description of the project, an overview of the human uses and biophysical features of the local environment; outline the key “Valued Environmental Components” addressed by the EA document; and present an evaluation and summary of the benefits and potential impacts to the environment during all phases of the proposed undertaking. In support of the EA a Biophysical Assessment (**Appendix D**), an Archaeological Resource Impact Assessment (ARIA) (**Appendix E**), and Water Balance Assessment (**Appendix F**) were completed.

Envirosphere Consultants Limited (Envirosphere) was retained by MEL to undertake a Biophysical Assessment as part of the proposed expansion of the Granite Village Quarry. Information for the Biophysical Assessment (**Appendix D**) was obtained from consultants’ personal knowledge, from reviews of available information and knowledge of the purpose and proposed design of the project. The environmental assessment follows *Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia* (NSE September 2009) and uses assessment methodology typical for environmental assessment screenings of this kind. For this assessment a list of VECs, and project activities and outcomes for the expansion of the existing quarry were developed. Potential for interactions of these activities with VECs was identified. Where interactions were identified, and there was potential for significant impacts, mitigating actions or activities have been suggested that will avoid the impact or reduce it to acceptable levels before the project proceeds. The process ensures that all potentially significant impacts on VECs are identified and all potential impacts on them have been considered, and sufficient mitigation planned. These aspects of the project are fully dealt with in Section 6 – Valued Environmental Components and Effects Management.

Cultural Resource Management Group Limited (CRM Group) was retained by MEL to undertake an ARIA as a part of the proposed expansion of the Granite Village quarry. The assessment involved background research, Mi’kmaw engagement and field reconnaissance to identify, document, interpret and make management recommendations for potential cultural resources within the proposed impact area (Archaeological Resource Impact Assessment. CRM, 2021 – **Appendix E**).

The ARIA was conducted according to the terms of Heritage Research Permit A2022NS035 (Category “C”) issue to CRM (Emily Redden) through the Special Places Program of the NS Department of Communities, Cultural and Heritage (Special Places). The report describes the ARIA of the Granite Village quarry expansion study area, presents the results of these efforts and offers cultural resource management recommendations. Based on these results, CRM provided the following specific recommendations for the study area:

1. It is recommended that the study area, as defined in the CRM report be cleared of any requirement for future archaeological investigation.
2. If archaeological deposits or human remains are encountered during construction activities associated with the Granite Village Quarry, all work in the associated area(s) should be halted and immediate contact made with the Special Places Program (John Cormier: 902-424-4542).

Consulting Hydrogeologist J. Fraser prepared a Water Balance Assessment for the proposed Granite Village Quarry expansion area. This Water Balance presents an assessment of the

estimated effects on the surrounding water features resulting from the proposed quarry expansion. The analysis is intended to identify any potential changes in the surface and groundwater flow regime and to provide input into the design and implementation of surface water control infrastructure as the site is further developed. The Water Balance Assessment for the Granite Village Quarry is included as **Appendix F**.

### **3.4 Other Approvals Required**

The existing Granite Village Quarry is subject to an existing Industrial Approval (IA) (**Appendix A**), which includes conditions related to operational sound levels, separation distances, particulate emissions, surface water quality, groundwater management, blasting, reclamation, regulatory reporting as well as several site-specific conditions. It is understood that prior to quarry expansion, the existing IA will be amended based on the results derived from the various studies and assessments that form this Environment Assessment, and the potential EA Approval. The amended IA will outline the operational requirements of the future quarry operation. It is expected that the amended IA will include additional conditions for specific surface water monitoring and groundwater monitoring. Environmental monitoring information that is collected from the site will be provided to NSECC as part of an annual report.

It is understood that additional environmental approvals, permits, and/or authorizations may be required in the future. Wetland alteration approvals will be obtained prior to the removal of any wetland habitat associated with the proposed quarry expansion. At this time, no other approvals, permits, and/or authorizations are expected to be required in support of this application.

In addition to the respective site approvals, Dexter also operates the quarry in accordance with applicable environmental laws and regulations, including the NSECC Pit and Quarry Guidelines. If MEL fails to comply the conditions of approval, the IA may be suspended or revoked. Failure to comply may also result in penalties as set out in the *Nova Scotia Environment Act* and associated regulations.

MEL is required to notify NSECC of any adverse effect or the potential for adverse effect which the Company becomes aware of while operating under the IA and must notify NSECC if any of the conditions specified in the IA are violated or exceeded.

MEL is required to bear all costs associated with meeting the requirements of the approval; no cost is borne by the Nova Scotia taxpayer.

## **4.0 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT**

### **4.1 Methods of Involvement**

MEL has engaged various project stakeholders, as outlined below. Community and First Nations engagement to date has focussed on notifying local elected officials and community representatives. Engagement efforts have included email correspondence and in person meetings. As part of the Biophysical Assessment, local community members in the immediate vicinity of the Quarry were contacted by Envirosphere to provide comments on their interactions with the quarry over the years.

With respect to the First Nations Community, MEL has followed the Proponent's Guide: The Role of Proponents in Crown Consultation with the Mi'kmaq of Nova Scotia. In this regard Dexter has advised Chief Deborah Robinson (Acadia First Nation) of its intent to file the Registration Document for a Class 1 Undertaking under Section 9 (1) of the NS Environmental Assessment

Regulations. Dexter also sent this letter to Ms. Twila Gaudet, Director of Consultation with the Kwilmu'kw Maw-klusuaqn Negotiation Office (KMKNO), Chief Lorraine Augustine of the Native Council of Nova Scotia, and Ms. Salima Medouar, Consultation Advisor with the Nova Scotia Office of L'Nu Affairs. A follow up letter was also sent to all noted First Nation representatives on March 8, 2023, advising of the EA registration date, public viewing locations, and timelines for the submission of comments. A copy of First Nations correspondence is included in **Appendix G**.

**Table 1. Granite Village Quarry Environmental Assessment - Stakeholder Engagement Summary.**

Stakeholder	Description of Engagement	Summary of Engagement
Acadia First Nation Chief Deborah Robinson	June 27, 2022 Engagement Letter	<ul style="list-style-type: none"> <li>Engagement letter, including Project Summary, anticipated timeline, offer to discuss the project, and commitment to send follow up notification letter prior to EA registration.</li> <li>No response received</li> </ul>
	March 8, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Notification letter, including planned registration date, and offer to discuss project.</li> </ul>
Kwilmu'kw Maw-klusuaqn Negotiation Office Ms. Twila Gaudet	June 27, 2022 Engagement Letter	<ul style="list-style-type: none"> <li>Engagement letter, including Project Summary, anticipated timeline, offer to discuss the project, and commitment to send follow up notification letter prior to EA registration.</li> <li>No response received</li> </ul>
	March 8, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Notification letter, including planned registration date, and offer to discuss project.</li> </ul>
Native Council of Nova Scotia Chief Lorraine Augustine	June 27, 2022 Engagement Letter	<ul style="list-style-type: none"> <li>Engagement letter, including Project Summary, anticipated timeline, offer to discuss the project, and commitment to send follow up notification letter prior to EA registration.</li> </ul>
	March 8, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Notification letter, including planned registration date, and offer to discuss project.</li> </ul>
Sipekne'katik First Nation Chief Michael Sack	June 27, 2022 Engagement Letter	<ul style="list-style-type: none"> <li>Engagement letter, including Project Summer, anticipated timeline, and offer to discuss the project. Commitment to send follow up notification letter prior to EA registration.</li> <li>No response received</li> </ul>
Sipekne'katik First Nation Chief Michelle Glasnow	March 1, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Notification letter, including planned registration date, and offer to discuss project.</li> </ul>
Office of L'Nu Affairs Ms. Salima Medouar Consultation Advisor	June 17, 2022 Email	<ul style="list-style-type: none"> <li>Dexter proposed engagement plan to Office of L'Nu Affairs, including reaching out via letter to; Acadia First Nation, Sipekne'katik First Nation, Kwilmu'kw Maw-klusuaqn Negotiation Office, and the Native Council of Nova Scotia</li> <li>No response received</li> </ul>
	June 27, 2022 Early Engagement Letter	<ul style="list-style-type: none"> <li>Copied OLA on early engagement letter to Acadia First Nation</li> </ul>
	June 28, 2023 Email	<ul style="list-style-type: none"> <li>Forwarded a copy of early engagement letter via email</li> </ul>
Office of L'Nu Affairs Ms. Krista McLarty Consultation Advisor	March 8, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Notification letter, including planned registration date, and offer to discuss project.</li> </ul>
	March 8, 2023 Notification Letter	<ul style="list-style-type: none"> <li>Forwarded a copy of notification letter via email</li> </ul>

Stakeholder	Description of Engagement	Summary of Engagement
<p><b>Region of Queens Municipality</b> Ms. Darlene Norman Mayor</p> <p><b>Region of Queens Municipality</b> Mr. Kevin Muise District 1 Councilor</p>	<p>February 21, 2023 Meeting</p>	<ul style="list-style-type: none"> <li>• Provided a hard copy of the Granite Village Quarry Expansion Project Summary, drone photo of the site, and Dexter quarry discussion package.</li> <li>• High level history of the site. Developed approximate 25-years ago by Dexter Construction. Reviewed the location of the Granite Village Quarry in relation to the other sites in the area.</li> <li>• High level overview of NSE Quarry Approvals (Industrial Approval (&lt;4 ha) vs. Environmental Assessment Approval (&gt;4 ha), including summary of T&amp;C's in a typical Industrial Approval, and anticipated T&amp;C's in an EA Approval.</li> <li>• Discussed the scope of the expansion (proposed expansion from 4-hectares to 8-hectares. Noted that there are no anticipated operational changes (frequency, duration, level of activity, etc.) other than an increase in the site footprint. Site will continue to be seasonally operated on an as needed basis to support Dexter work in the area.</li> <li>• Noted that Dexter intends to register the project for Environmental Assessment in mid-March. Aligned with this will be a newspaper notice inviting comments from the public, and public viewing locations. The document will also be available electronically.</li> <li>• Mayor Norman and Councilor Muise suggested the Lighthouse Now weekly flyer could be an option for local notification at time of registration. Suggested that the Region of Queens Municipality Municipal Office, and Coastal Queens Place would be options for local placement of Registration Document.</li> </ul>
<p><b>Provincial Representative</b> <b>Ms. Kim Masland</b> <b>MLA, Minister of Public Works</b></p>	<p>February 13, 2023 Email</p>	<ul style="list-style-type: none"> <li>• Provided email notification of the proposed project and upcoming registration.</li> <li>• Offered to meet to discuss project in greater detail.</li> </ul>

### Stakeholders Comments

No stakeholder comments regarding the project have been received to date. General questions regarding the project have been discussed with local elected officials. Dexter will document any concerns received during the public consultation portion of the EA process and provide a copy to NSECC.

No comments regarding the project have been received from the First Nations Community to date. Dexter will continue to liaison with the First Nation Community when appropriate, and forward any comments received regarding the Project to NSECC.

## 4.2 Future Steps

On the date of Registration, the public will be notified of the EA Registration by an advertisement in the Chronicle Herald and the South Shore Breaker. A copy of the newspaper advertisement is included in **Appendix G**.

## 5.0 DESCRIPTION OF THE UNDERTAKING

### 5.1 Existing Quarry Operations

The existing quarry operations involve blasting, crushing, and stockpiling of aggregate, and associated trucking on an as required basis. In addition, a portable NSECC approved asphalt plant may occasionally be situated on the property. The quarry is operated in accordance with an existing Industrial Approval (IA) (Approval No. 2003-035824-R01). A copy of the IA is attached in **Appendix A**. The quarry operates in accordance with applicable environmental laws and

regulations, including the Nova Scotia Pit and Quarry Guidelines. These Guidelines apply to all pit and quarry operations in the province and provide separation distances for operations, including blasting, liquid effluent discharge limits, suspended particulate matter limits, sound level limits and requirements for a reclamation plan and security bond. Dexter is committed to the utilization of Best Management Practices in all phases of their operations, including the on-site management of air quality, greenhouse gas emissions, noise, dust, and water quality and will operate in accordance with applicable Federal and Provincial legislation and standards.

Operation of the quarry occurs on an as-required basis. Blasting occurs on average one to two times per year during years in which the site is active. Surface water controls are maintained, and associated surface water monitoring is conducted at the request of NSECC.

Site operations and historic aggregate excavation has not encountered the deep bedrock water table as evidenced by the lack of water ponding on the quarry floor, no observed seepage from the quarry highwall, and no upwelling of water through the quarry floor.

With respect to the characteristics of the quarry bedrock, a rock sample from the quarry was analysed for sulphur content to determine if the material was sulphide bearing. The results of this analysis yielded a sulphur concentration of 0.002 % (0.05 kg H<sub>2</sub>SO<sub>4</sub>/tonne), which is below the minimum (0.4 % S; 12.51 kg H<sub>2</sub>SO<sub>4</sub>/tonne) defined by NSE as sulphide bearing material. The laboratory results of this sample are included in **Appendix C**.

## 5.2 Future Quarry Operations

MEL proposes to expand the Granite Village quarry for the extraction, storage, and removal of aggregate, primarily used in the road and local construction industry. MEL is proposing to expand the existing quarry to a maximum 8.0-hectares, which includes the existing production and operational footprint, set-up and storage (stockpiles) areas, and provisions for surface water control.

Although totally dependent on local market conditions, it is anticipated, at this time, that future development will involve the production of up to approximately 50,000 tonnes of aggregate per year, during years in which the site is active, for the foreseeable future. The quarry highwall would be initially advanced in an easterly direction from the existing face. **Drawing # 2, Appendix B** identifies the proposed 8.0-hectare expansion area.

Quarry operations will generally coincide with the road construction season; therefore, it is reasonable to anticipate periodic, seasonal operations within a similar time frame (April – December). The quarry will operate when and as required within the typical 32-week construction season, depending on local demand and project requirements. A typical project (often an NSPW Contract) will require crushing activities at the quarry for a period of two to three weeks at a time. Although uncommon, during crushing activities the site may be operated 24 hours per day, possibly 7 days per week. Following crushing activities, aggregate products would be loaded and hauled from the quarry for several weeks, or as required by the project. During load and haul activities the site is typically operated during daylight hours (approx. 12 hours per day), possibly 7 days per week. Dexter is committed to the utilization of Best Management Practices in all phases of their operations, including the on-site management of air quality, greenhouse gas emissions, noise, dust, and water quality, and will operate in accordance with applicable Federal and Provincial legislation and standards.

Consistent with current operations, aggregate production would commence with drilling and blasting, utilizing a qualified blasting contractor to conduct this work. The blasting contractor would

be responsible for blast designs and methods in accordance with the General Blasting Regulations contained in the Nova Scotia Occupational Health and Safety Act, 1996. Blasting would also be conducted in accordance with the Pit and Quarry Guidelines. Blasting and noise level guidelines respecting the time of day/day of the week will be followed and blast monitoring will be conducted for every blast event. The existing Industrial Approval stipulates blasting control and monitoring requirements.

The blasted rock will be transported to a portable crushing spread for processing. The various aggregate products will be stockpiled in designated areas within the quarry. Material within the quarry will be hauled and moved with a front-end loader. Products will be transported from the quarry by tandem and tractor trailer trucks approximately 650 metres via a gravel road to Highway 103 and will be routed as necessary through the provincial highway and roadway network to support local projects. The number of trucks hauling aggregate will be determined on a job-by-job basis, however as the site is not expected to increase in level of activity, trucking activity is not expected to increase from past use.

Aggregate excavation will not take place below the deep bedrock water table. If aggregate extraction below the groundwater is required in the future, a Hydrological Study will be completed and an application to amend the IA will be submitted to NSECC. Prior to quarry expansion, a network of groundwater monitoring wells will be installed around the quarry to confirm the local groundwater elevations.

## **6.0 VALUED ENVIRONMENTAL COMPONENTS AND EFFECTS MANAGEMENT**

### **6.1 Evaluation and Categorization of VEC's**

The Environmental Assessment for this project involved review of the Industrial Approval for the existing quarry (**Appendix A**), testing for Potential Acid Rock Production (**Appendix C**), the preparation of a Biophysical Assessment (**Appendix D**), an Archaeological Resource Impact Assessment (**Appendix E**), Water Balance Assessment (**Appendix F**), and a variety of Stakeholder Engagement as outlined in **Table 1** and **Appendix G**. The environmental assessment follows the "Guide to Preparing an EA Registration Document for Pit and Quarry Developments in Nova Scotia (NSECC September 2009). For this assessment a list of VECs and project activities for the proposed quarry expansion were developed and the potential for interactions of these activities with VECs were identified. Where interactions were identified and there was potential for significant impacts, mitigating actions or activities have been identified that will avoid the impact or reduce it to acceptable levels before the project proceeds. This process ensures that potentially significant impacts on VECs are identified and potential impacts on them have been considered and sufficient mitigation planned and implemented.

The list of Valued Environmental Components considered for the assessment, and interactions with project components, are presented in **Table 2**. The environmental effects and potential impacts of the project along with their significance and suggested mitigations are outlined in the following sections.

<b>TABLE 2- Valued Environmental Components (VECs) for Granite Village Quarry Expansion.</b>	
BIOPHYSICAL	SOCIO-ECONOMIC
Air Quality, Noise and Light Groundwater Hydrology Water Quality Freshwater Aquatic Environments and Wetlands Terrestrial Environments Coastal Environments Fish and Fish Habitat Flora and Fauna Habitat Species at Risk Natural Areas and Wilderness	Mi'kmaq First Nation Recreational, Tourism and Viewscape Recreational, Commercial & Mi'kmaq Fishing Archaeological, Cultural and Historical Economy, Land Use and Value Transportation Residential Use Commercial/Industrial Use Water Supplies & Residential Wells Parks & Protected Areas Forestry, Hunting and Trapping

## 6.2 Socio-economic Components

### 6.2.1 Mi'kmaq First Nation

#### Background

The Mi'kmaq maintain interest in all lands in Nova Scotia and claim they have never surrendered, ceded, or sold the Aboriginal title, and that they claim all of Nova Scotia. As co-owners of the land and its resources, they expect that any potential impacts to rights and title be addressed. Mi'kmaq occupied much of Nova Scotia prior to European contact, and lands were used to varying degrees for habitation, hunting and fishing. In more recent times, treaties made with the British and continued through Canadian law have maintained their rights.

The Atlantic Coast was used by Mi'kmaq, both as a food source and as a transportation corridor; however, there is low potential for occurrence of Mi'kmaq archaeological resources within the proposed quarry expansion area (CRM, 2002).

The quarry is not located near established First Nations Reserves and First Nations activities are not expected to be directly affected by the Granite Village Quarry. Best management practices used at the site will reduce any potential impacts quarry activities may have on water quality, quantity and/or fish habitat, and will be validated through a surface water management and monitoring program that will be established through the subsequent Industrial Approval process. Land around the Granite Village Quarry may be used by Mi'kmaq living in the area and/or other residents for nature-based activities such as walking, ATV use, bird watching and hunting or fishing (either recreationally or for subsistence). The land area affected is small in relation to the available wildlife habitat in the area and would not likely affect wildlife or fish populations, potentially used by Mi'kmaq. Activities are seasonal and therefore would not interfere with other uses such as hunting, trapping and snowmobile and recreational vehicle use during the winter and spring. Since quarry operations are not expected to change in scope or to increase in frequency or intensity from past use, there is unlikely to be a change in the cumulative effects of other activities in the area; consequently, none of these effects are considered significant.

## Significance and Mitigation

There is low potential for occurrence of Mi'kmaq archaeological resources within the quarry site as outlined in the ARIA (CRM, 2022). In the unlikely event that artifacts are uncovered at the site, all work will stop, and discoveries will be reported to the appropriate authorities and mitigation will be enacted to the satisfaction of all parties involved. There is also a low potential for contamination of surface water or groundwater that may affect fish resources or water quality, however the quarry will include both surface and groundwater monitoring as well as the use of Best Management practices to avoid accidental release of contaminants as well as vehicle accidents.

### **6.2.2 Recreational Activities**

#### Background

The coastal zone between Highway 103 and the Atlantic Ocean has been managed by the Province of Nova Scotia, the federal government, and conservation organizations and groups to protect environments and associated wildlife and species of conservation concern and to provide the public with opportunities to experience them. Residents of the area also have the opportunity to live in a relatively untouched natural environment with a low population density leading to local uses such as hunting and fishing, walking and hiking as well as home-based recreation (e.g., gardening) concentrated around roads and population centres in the area. The principal effects of the quarry on tourists and locals using the area for recreation would be from truck and vehicle traffic and noise associated with the operation of heavy equipment; however, these interactions are a small component of a range of other industrial activities including logging trucks and equipment and general high-volume along the major Highway 103 transportation route to which locals are exposed. Noise from routine operations at the quarry would not be heard in the nearby communities of East Side Port L'Hebert and Port Joli or in the Thomas Raddall Park; noise from blasting may be heard over a wider area, one to two times a year. Unlike other activities, the effects of the quarry would occur principally when the quarry is operating, while other activities in the area could occur year-round. Operations at the quarry would be cyclic, likely occupying several weeks to months during the construction season during the years in which the site is active. The site is regulated and monitored through an Industrial Approval issued by the Province.

#### Significance and Mitigation

Although quarry operations may be heard and residents may experience truck traffic and other effects of quarry operations, the frequency and scope of activities within the quarry is not expected to increase from past use, and any impact on normal activities of residents because of the proposed quarry expansion are expected to be negligible.

Signage will be in place at the entrance to the quarry during periods of site activity to ensure that visitors to the quarry are aware of on-going activities. Road users will be informed of temporary increased trucking activity by signage placed along Highway 103, in accordance with NSDPW requirements.

### **6.2.3 Tourism and Viewscape**

#### Background

Expansion of the existing Granite Village quarry is not expected to have a significant impact on tourism and viewscape. The principal interactions would be noise and truck traffic transporting aggregate to job sites. Some operations at the quarry may be heard at the nearby Port L'Hebert



Provincial Park, but not at Thomas Raddall or Kejimikujik Seaside Adjunct and if heard would be against a background of truck noise on Highway 103. Blasting, which may be heard at greater distances, is of short duration and occurs infrequently – one to two times a year. The quarry can be seen briefly by motorists traveling along Highway 103. The expansion will not result in a change in annual or daily activity, or visibility. Highway 103 is an important local travel and tourist route and already has high volumes of traffic of various kinds, including those associated with local resource industries including forestry and fishing and traffic associated with the quarry would be a minor component. Truck and equipment traffic accessing and exiting the site onto Highway 103 is expected to be the main interaction with tourists. This traffic is expected to be seasonal and occasional, will be similar now as in the future and would likely only be a minor impediment to tourist vehicle traffic in the area.

#### Significance and Mitigation

Overall, the effects on tourism and viewscape are expected to be negligible. The limited visibility of the quarry from Highway 103, and lack of visibility from other nearby areas will not change. Signage will be in place during periods of site activity to ensure that residents are aware of seasonal quarry activities and associated trucking and transportation routes.

Other on-site mitigation to control and mitigate potential nuisance impacts will include Best Management Practices, including dust and noise control, and the on-going progressive rehabilitation of quarry areas no longer required for activity and/or future development.

### **6.2.4 Recreational, Commercial, and Mi'kmaq Fishing**

#### Background

Recreational fishing in watercourses near the quarry is not expected to be affected by activities at the quarry. The amount of runoff from the quarry is small and of high quality and will have a negligible impact on the watercourses and fish habitat downstream. Surface waters at the site have high quality, including low turbidity and neutral pH, which would lead to good water quality downstream for fish.

#### Significance and Mitigation

The effects of the quarry expansion are expected to have a negligible impact on recreational, commercial and Mi'kmaq fishing. Mitigation will include the use of Best Management Practices on-site (i.e., pollution prevention, emergency response procedures, dust control, progressive rehabilitation). It is expected that a condition of EA approval will be to develop a surface water management plan for the site. A surface water management plan will be developed as part of the subsequent Industrial Approval (IA) process and will include specific surface water controls. Surface water, groundwater, and blasting will be monitored as per the Terms and Conditions of the amended IA.

### **6.2.5 Archaeological / Cultural / Historical**

#### Background

The land proposed for the quarry expansion has low potential for pre-contact and/or early historic First Nations or European archaeological resources (CRM 2022). The site is not expected to have been a prime area used by Mi'kmaq pre-contact.

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## Significance and Mitigation

The impact of the proposed quarry expansion on archaeological, cultural, or historical features is expected to be negligible. If an archaeological, cultural, or historical feature of significance is encountered during quarry activities, the impact will be reduced by halting operations and consulting with the Province and experts in the field to ensure the artifact or feature is not disturbed and is adequately documented and preserved. If the feature is suspected to be of Mi'kmaq origin, the appropriate Mi'kmaq authorities will be contacted.

### **6.2.6 Economy, Land Use, and Value**

#### Background

Activities at the Granite Village quarry will not restrict or negatively impact forestry or industrial activity in the area and in fact will support those operations by helping to maintain the access road to the site which is also used by logging trucks and equipment on lands surrounding the quarry property. The quarry supports construction activities through the use of aggregate from the quarry for projects in the area at a competitive cost due to the proximity of the quarry. When the quarry is operating, construction crews will typically use local accommodations and services as well as local trucks. The existing quarry has been operating at the site for many years with little or no impact, while providing economic development and a source of aggregate for local construction projects. The proposed quarry expansion will result in the removal of a small area of potential woodland and associated wildlife resources (i.e., forestry and trapping), however these impacts are expected to be minimal.

#### Significance and Mitigation

Overall, due to the small land area affected relative to the total land area available in the vicinity, the lack of restriction on industrial activities, as well as no expected change in the current low traffic levels, the proposed quarry expansion is expected to have a negligible impact on economy, land use and value. Mitigation including minimizing the quarry footprint within the NSECC approved quarry permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities, will minimize impacts on economy, land use and value.

### **6.2.7 Transportation**

#### Background

During periods of operation the quarry will generate a comparatively low level of truck traffic on highways in the area. Activity at the quarry is not expected to increase from historic levels, and consequently traffic volumes are not expected to increase significantly from historic levels. The intersection of the quarry access road with Highway 103 has good sightlines and has been safely used since the quarry's inception. The potential for hazardous encounters due to the long stretch of highway on either side which does not have significant on-turning traffic can be mitigated by applicable warning signs placed far in advance of the access road to indicate the likely presence of heavy equipment and trucks turning.

#### Significance and Mitigation

Overall, the impact of the project on transportation is expected to be minimal, with little or no change from previous operations at the quarry. During periods of site operation, signage for truck

and equipment operators, as well as the surrounding communities will be placed to help inform the public that the quarry is active. Safe use of the road and avoidance of accidents is essential, both for human impacts and the potential impacts of vehicle accidents and spills on the local watercourses and environments. Warning signs and speed limits can be placed in areas leading to the quarry, when the quarry is operating, to improve safety. Equipment and truck operators for the quarry will be given instruction on safe procedures.

### **6.2.8 Residential Use**

#### Background

There are no permanent residences within 800 meters of the quarry and only a single seasonal residence – a cottage – is situated about 500 m west of the quarry access road. Dexter currently monitors for blast intensity at the cottage. Therefore, overall, there are negligible concerns regarding the effects on groundwater wells or impacts of blasting on structures. Skyshine from the quarry, on rare occasions when the quarry may be operated at night, might be seen by residents of East Side Port L’Hebert.

#### Significance and Mitigation

Overall, the impact of the project on residential use is expected to be minimal, with little or no change from previous operations at the quarry. However, mitigation measures such as maintaining appropriate operational buffers, controlling vehicle speed and engine braking, securing equipment to prevent banging (e.g., doors and chains), covering loads, wetting working areas, etc. will be implemented, ensuring that quarry operations comply with noise and dust limits according to the Pit and Quarry Guidelines. Attention will be given to dust management through standard dust mitigation strategies (water spray, reducing speeds, gravelling working areas, etc.). Noise and dust monitoring will be conducted as per the terms and conditions of the Industrial Approval for the approved quarry. Lights, if required, at the site, may be seen by immediate residents, but would be controlled by proper environmental management practices at the site (i.e., downward directional lighting).

Quarry activities such as blasting, are not expected to impact residential water supplies, as homes are located at a significant distance from the site. All blasting events will continue to be monitored for concussion and ground vibration to ensure blasting limits are achieved as per the Industrial Approval (IA). It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent IA process, the required on-site groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified.

The quarry will include signage with phone numbers and contact persons should any members of the community wish to register complaints or concerns. A complaint resolution procedure will be put in place by Dexter to address any complaints and concerns received.

### **6.2.9 Commercial / Industrial Use**

#### Background

There are no businesses in the vicinity of the quarry which could be affected. The quarry contributes to the net economic benefit in the community through supporting local trucking

operations and providing access to aggregate and other quarry products as well as maintaining the quarry access road.

#### Significance and Mitigation

The impact of the project on commercial and industrial use is expected to be minimal, with little or no change from previous operations at the quarry. The continued use of Best Management Practices as well as strict adherence to the terms and conditions of the Industrial Approval will ensure that this is maintained through future operations.

### **6.2.10 Water Supplies and Residential Wells**

#### Background

Surface water and wells associated with the nearest residences and businesses in Port Joli and East Side Port L'Hebert, as well as in the Thomas Raddall Park are too far from the quarry and in a different groundwater regime to be affected by quarry activities, including blasting. Groundwater recharge generated by the quarry is likely to be of high quality (low conductivity and dissolved solids and neutral in pH).

#### Significance and Mitigation

The impact of the project on water supplies and residential wells is expected to be minimal, with little or no change from previous operations at the quarry. Best management practices and Industrial Approval conditions for all operations, including blasting will be followed. Established operational procedures for fuelling will be followed and a contingency plan will be maintained to mitigate reasonable impacts on aquifers at the site. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent Industrial Approval (IA) process, an on-site groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified.

### **6.2.11 Parks and Protected Areas**

#### Background

The proposed expansion of the Granite Village quarry site will not change the intensity or frequency of activity at the site and therefore the degree of any interactions with the managed parks and protected areas in the Port Joli to Sable River area is not expected to change. The quarry is visible to tourists travelling via Highway 103, however the expanded quarry area is not expected to increase the visibility of the site from Highway 103,. With no expected change in the scope or frequency of quarry activity due to expansion, road traffic activity due to the quarry is not expected to change or be high enough in volume to disrupt tourist traffic. Occasional blasting (one to two times a year) may be heard in the Provincial Parks in the area and at the Kejimikujik Seaside Adjunct, but noise at levels generated from routine operations at the quarry is not expected to be heard. Occurrences of blasting are brief and infrequent and not likely to be a significant concern to visitors/users of those areas. The quarry will be reclaimed at the end of its useful life. Expansion of the quarry will not affect the integrity of any nearby protected areas. The Granite Village quarry is within the South Shore (Port Joli sector) Important Bird Area (IBA) found along the coast. The IBA designation is intended to support marine and other coastal birds and wildlife and extends inland 2.5 km from the coast, encompassing both lands around the quarry

and Highway 103, which is a major source of noise and traffic in the area. The expanded quarry will remove terrestrial upland forest habitat of the IBA which is not used by coastal birds and is in an area already developed for transportation (the Highway 103 corridor) and a high voltage transmission line and therefore the habitat is already in a highly modified state.

### Significance and Mitigation

The impact of the project on parks and protected areas is expected to be minimal, with little or no change from previous operations at the quarry. Mitigation will include the use of Best Management Practices for all aspects of the quarry operation. Monitoring of surface water, groundwater, and blasting events will be conducted as per the terms and conditions of the IA.

## **6.2.12 Resource Use – Forestry, Hunting, and Trapping**

### Background

Use of the land in the proposed expansion area will remove the potential for future forestry use of the site, at least until after the quarry is closed and rehabilitated in future; however, the area occupied by the quarry is relatively small in relation to the available forest resources in the area, and the overall impact on economic return is expected to be small. The quarry will occupy a relatively small area of habitat for furbearing and game species and will not have a significant impact on hunting and trapping.

### Significance and Mitigation

The impact of the project on resource use such as forestry, hunting and trapping is expected to be minimal, with little or no change from previous operations at the quarry. Mitigation will involve the minimization of the footprint of the quarry footprint within the NSECC approved quarry permit area, and the progressive rehabilitation of areas no longer required for aggregate production or site related activities.

## **6.3 Biophysical Components**

### **6.3.1 Air Quality, Noise, and Light**

#### Background

Quarry activities are not expected to change from the previous scope of operations. Various project activities have the potential to generate dust, emissions, noise, and light. The operation of heavy equipment (e.g., earth movers, crushers), rock drilling and blasting, as well as onsite routine operations contribute to noise, dust, and particulate levels. Dust emissions are expected to be localized and short term and are expected to be minimal from routine operations. Exhaust emissions will occasionally be generated by the operation of vehicles and equipment.

Noise, dust, and emission levels from the expanded quarry are expected to be similar to those already produced at the site, since there is not anticipated change in the scope of the quarry. Blasting is expected to occur infrequently (1-2 times per year during years in which the site is active).

Occasional night-time operations may be required. Light during night-time operations—particularly during times of low-hanging cloud and fog—can attract migrating birds traveling over water towards the rest of the mainland of Nova Scotia.

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## Significance and Mitigation

Overall, the impact of the project on air quality, noise and light is expected to be similar to the existing operation, with little or no change from previous operations at the quarry. With appropriate mitigation applied, potential impacts on air quality, noise, and light are expected to be minimal.

Dust management will be achieved through the use of water spray systems designed to reduce air borne dust originating from crushing operations and construction vehicle movement, by gravelling working areas, and reducing vehicle and equipment speed. Monitoring of airborne particulate emissions will be conducted at the request of NSE and in accordance with the Pit and Quarry Guidelines and the site Industrial Approval (IA). Industry standards and best practices will be followed during all phases of operations.

Noise mitigation will include maintaining appropriate operational buffers, maintaining vehicles and heavy equipment in operational order, and giving attention to traffic patterns around the site to reduce the need for heavy equipment to use back-up signals. The operation will ensure that heavy equipment does not exceed the noise limits specified in the Nova Scotia Pit and Quarry Guidelines. Blasting and the associated noise, is expected to occur infrequently (1-2 times year, during years in which the site is active). All blasting events will be monitored for concussion (noise) and ground vibration. Noise monitoring will be conducted at the request of NSE, in accordance with the terms and conditions of the Industrial Approval.

Vehicles and heavy equipment will follow efficient operating procedures such as not idling unnecessarily when not in use and avoiding use of engine braking. Given the relatively small size of the quarry and the scope of the planned operations, these emissions will be minimal (i.e., restricted to several pieces of heavy equipment, earth movers, trucks etc. as well as operation of portable crushers) and will be localized and similar in type and amount to those produced during previous operations. Ambient air quality monitoring will be conducted at the request of NSE, in accordance with the terms and conditions of the Industrial Approval.

With respect to light emanating from the site during infrequent night-time operations, measures will be taken to ensure use of directional lighting, which minimizes emanation of light upward and laterally over the horizon.

### **6.3.2 Groundwater**

#### Background

Activities associated with the project including forest clearing, grubbing and removal of overburden, and blasting, can influence groundwater flow locally in the vicinity of the quarry, but are not expected to influence groundwater aquifers over a broader area. The amount of recharge area involved in project activities is moderate in relation to the overall size of the aquifers in the general vicinity. The quarry floor will continue to add recharge in approximately the same amount as at present. Groundwater can potentially be impacted by spills and/or leaks from operating equipment; however, activities can be managed to eliminate these sources of contamination.

Site operations and historic aggregate excavation has not encountered the deep bedrock water table as evidenced by the lack of water ponding on the quarry floor, no observed seepage from the quarry highwall, and no upwelling of water through the quarry floor.

Future aggregate excavation will not likely take place below the deep bedrock water table. In addition, there will be no pumping of groundwater and therefore no dewatering of the associated bedrock aquifer.

### Significance and Mitigation

Overall, the impact of the project on groundwater is expected to be similar to the existing operation, with little or no change from previous operations at the quarry. With appropriate mitigation applied, potential impacts on groundwater are expected to be negligible.

The quarry excavation will not enter the groundwater table, so on-going pumping will not be required. If aggregate extraction below the groundwater water table is required in the future, a Hydrological Study will be completed and an application to amend the IA will be submitted to NSECC.

It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site. As part of the subsequent Industrial Approval (IA) process, an on-site groundwater monitoring program will be developed, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network will allow for on-going monitoring to ensure that any potential groundwater impacts are identified.

MEL has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact groundwater in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

### **6.3.3 Hydrology / Water Quality**

#### Background

Expansion of the quarry will modify the existing hydrology at the site, resulting in an artificial though managed regime of surface water movement and runoff at the site. The proposed expansion area is small and consequently the effect on flow to local surface water will be minimal and therefore not significantly disrupted (Water Balance Assessment, 2022) (**Appendix F**). If aggregate washing is required, wash water will be managed within the site itself such that all wash water is retained on-site and can be re-used in the aggregate washing process. Surface water runoff from the quarry is inherently intermittent and is not expected to affect overall flow characteristics in downstream areas significantly.

With respect to the characteristics of the quarry bedrock, a rock sample from the quarry was analysed for sulphur content to determine if the material was sulphide bearing. The results of this analysis yielded a sulphur concentration of 0.002 % (0.05 kg H<sub>2</sub>SO<sub>4</sub>/tonne), which is below the minimum (0.4 % S; 12.51 kg H<sub>2</sub>SO<sub>4</sub>/tonne) defined by NSE as sulphide bearing material. The laboratory results of this sample are included in **Appendix C**. The quarry rock to be excavated is not acid producing and therefore will not have a negative effect on surface water or groundwater quality.

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### Significance and Mitigation

Overall, the impact of the proposed quarry expansion on the local hydrology (i.e., flow and quality) is expected to be similar to the existing operation. With appropriate mitigation applied, potential impacts on local hydrology are expected to be minimal.

It is expected that a condition of EA registration approval will be to develop a surface water management plan for the site. A surface water management plan will be developed as part of the subsequent IA process and will include specific surface water controls and erosion and sediment control strategies. A monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to ensure that any potential hydrology impacts are identified.

Water usage will be primarily for dust control via spray systems on crushing spreads and application of water on roads. Water will either be sourced onsite through retained surface water in the fractured quarry floor or imported from offsite. The application of water for dust control will be at a rate that does not produce significant amounts of runoff that need to be managed. Anticipated water usage at the site is not expected to be at a frequency or volume that would require a water withdrawal approval.

### **6.3.4 Freshwater Aquatic Environments and Wetlands**

#### Background

There are no permanent streams within the proposed quarry expansion area. Riparian wetlands along the small intermittent watercourses downstream from the quarry are not expected to be impacted significantly. Quantities of runoff arising from the site in future from the outer slopes of berms and grubbing piles will be approximately the same as at present and will remain in the same watershed. The quarry is unlikely to generate significant quantities of contaminants or suspended sediments that could impact any freshwater habitat. Wetland habitat at the site includes a large, predominantly marsh wetland that transitions to bog-like, scattered bog habitat within shrub barrens; and treed/shrub swamps.

#### Significance and Mitigation

Overall, the impact of the project on the local freshwater aquatic environments and wetlands is expected to be negligible.

Potential impacts to local freshwater aquatic environments and wetlands will be mitigated via the maintenance of forested buffer zones and using surface water control and monitoring procedures as outlined in the Hydrology and Water Quality Section.

The two treed wetlands (WL-3, WL-4) located within the southern portion of the proposed quarry expansion area will be partially removed in the future. A wetland alteration approval will be obtained prior to any physical disturbance of these wetlands.

The large wetland complex (WL-1) was identified to the northeast, upgradient of the existing quarry. The proposed quarry expansion area has been adjusted to account for this wetland and a 30-meter buffer will be maintained from the wetland. Where historic quarry operations have encroached within 30-meters of the wetland, no further advancement of the active area will occur.



A plan to monitor this wetland to ensure no impacts or changes as a result of the proposed quarry expansion will be prepared as part of the subsequent IA Amendment Application.

### **6.3.5 Terrestrial Environments**

#### Background

The proposed quarry expansion will utilize areas which are mainly medium-aged deciduous and mixed forest, types which are common in the general vicinity, and locally at the site and the quarry will not remove a large proportion of either type. No unique habitats were identified at the site. Dust from operations may affect adjacent forest communities although the impacts are likely to be negligible. Other potential impacts include releases of chemicals from blasting and runoff from materials stored at the site, accidental spills from vehicles operating during quarrying operations, grubbing, road construction, pit preparation and damage to the natural forest ecosystem and associated species, changes to runoff patterns locally and associated effects to the local surface water and groundwater regimes.

#### Significance and Mitigation

Overall, the impact of the project on the local terrestrial environments is expected to be minimal. Mitigation to address the potential effects noted above will include the provision of pollution prevention and emergency control procedures; the use and maintenance of vegetated buffer zones; the removal of forest cover in small stages according to a site development plan; clearing of vegetation outside of the breeding seasons for birds; and rehabilitation of the site after use.

### **6.3.6 Coastal Environments**

#### Background

The coastal zone between Highway 103 and the Atlantic Ocean is a largely undisturbed and distinctive area, in an area which has been largely free of urban development. This area has become valuable not only for the natural features and scenic and wilderness values of undisturbed sites and for wildlife (e.g., Piping Plover), but also for tourism and recreation. Although the quarry is on the margin of an important management zone which has been developed to protect these values, it is also in an industrial corridor due to the presence of Highway 103. The area is occupied by utility corridors for transmission lines and communication towers, is an active zone for forestry, and formerly held a railway line. These current levels of activity in the corridor have had minimal impact on the other uses of the coastal zone.

#### Significance and Mitigation

Overall, the impact of the project on the coastal environment is expected to be minimal.

Mitigation to address the potential effects noted above will include the provision of pollution prevention and emergency control procedures; the use and maintenance of vegetated buffer zones; the removal of forest cover in small stages according to a site development plan and clearing vegetation outside of the breeding seasons for birds.

### **6.3.7 Fish and Fish Habitat**

#### Background

None of the proposed project activities will physically impact potentially fish-bearing streams, and there is no fish habitat on-site. Surface runoff from the site enters intermittent flowages some distance from the site. No fish were found in the flowages leading from the site and no fish habitat was found.

A Water Balance Assessment (**Appendix F**) has been completed as part of the EA process, which estimates that the changes in infiltration and runoff due to quarry expansion are expected to be minimal and within the anticipated range of seasonal variance. This suggests that there will be only minor changes in the quantity of runoff from the quarry possible contributing flow to the local flowages.

### Significance and Mitigation

Overall, the effects of the quarry construction and operations on fish and fish habitat are expected to be negligible. Any potential impacts will be mitigated as outlined below.

It is expected that a condition of EA approval will be to develop a surface water management plan for the site. A surface water management plan will be developed as part of the subsequent Industrial Approval (IA) process and will include specific surface water controls. A monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to ensure that runoff from the quarry meets guidelines for maintenance of Freshwater Aquatic Life and the limits stipulated in the IA.

All guidelines for activities and timing of blasting in the quarry will be followed and each blast will be monitored for concussion and ground vibration.

Dexter has developed a Contingency Plan for pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact fish and fish habitat in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC. In addition, safe driving practices for all vehicle operators will be implemented to minimize the potential of accidents, especially in the vicinity of key quarry intersections.

### **6.3.8 Flora and Fauna Habitat**

#### Background

Expanding the Granite Village Quarry will progressively remove existing terrestrial ecosystem (plants and animals) in the footprint of the quarry. Removal of forest cover is a feature that quarry development shares with logging activities, which affects local ecosystems to a moderate degree, and is allowed in Nova Scotia. Expansion of the Granite Village Quarry will result in only a comparatively small change in the coverage of natural and mature forest stands in the area and is expected to have comparatively small impact on interior forest birds and wildlife. During operations, modified areas of the quarry offer potential nesting sites for certain species of birds and other wildlife, including hunting spaces for species such as owls and nesting for ground nesting birds such as nighthawks. Night operations and use of lights have various effects, including attracting insects which otherwise would need darkness to mate and reproduce. Other quarry activities such as blasting and vehicular operation and movement are not expected to interact significantly with wildlife and therefore are not a concern.

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## Significance and Mitigation

The effects of quarry construction and operations on flora and fauna habitat with appropriate mitigation are expected to be negligible. Potential impacts will be mitigated as outlined below.

Areas no longer suitable for quarry operations will be progressively remediated. A Reclamation Plan has been established and updating the Plan every three years is a condition of the quarry Industrial Approval. Plant and animal communities that arise in remediated areas will likely differ to some degree from those at present; however, a goal of remediation will be to ensure that conditions (e.g., soil types and topography) are reasonably restored to pre-existing conditions, to allow natural communities to regenerate. During recovery and revegetation of progressively rehabilitated areas, the forest succession will provide habitat for a moderate diversity of species. Normal management practices regarding forest clearing, such as avoidance of cutting or major clearing activities during critical breeding periods of songbirds from mid-April to mid-September, will reduce loss of nesting birds in forest areas. Quarry employees will be educated on the need to check areas for activity and nests including both ground- and tree-nesting birds, before undertaking activities which would disturb established surfaces. Lighting used at the site should focus downward and below the normal horizon, to limit visibility by birds and insects from a distance.

It is expected that a condition of EA approval and the Industrial Approval for the quarry, will be to develop a Wildlife Management Plan for the site. The Wildlife Management Plan will establish appropriate mitigation measures to manage wildlife resources (avian species and their nests, species at risk, non-native plant species, etc.). Dexter has also developed a Contingency Plan for its pit and quarry operations. The Contingency Plan includes procedures and processes for responding to environmental emergencies including spill or release occurrences that could potentially impact flora and fauna in the area. Spill response, clean-up, and reporting will be in accordance with applicable NSECC Regulations. The Contingency Plan will be included with subsequent IA applications for review by NSECC.

### **6.3.9 Species at Risk**

#### Background

No federally- or provincially-listed species at risk, or species more sensitive than S3 ranking (vulnerable), were found in the proposed expansion area, however a single plant of Bicknell's Crane Bill (*Geranium bicknellii*) (S3 ranking), and Sharp Fruit Rush (*Juncus acuminatus*) (S3S4 ranking) were observed within the overall study area. Additionally, a Blue Felt Lichen (listed as special concern under SARA and COSEWIC) was observed to the northeast of the existing quarry. No American Marten and Canada Lynx (both provincially listed as Endangered) which can occur in Queens County have been recorded within 25 km of the site and neither have been trapped recently in the area and therefore the quarry will not have a significant potential for impacting them or their habitat. Common Nighthawk, a ground-nesting species, potentially could nest in grubbed and marginal but open areas of the quarry. Lights during night operations during migration periods (April – June, August – September) would attract various bird species and insects, which could include species at risk. Blasting events, although infrequent (1-2 times/year during years in which the quarry is active) are also of concern to species at risk.

#### Significance and Mitigation

The proposed quarry permit area has been adjusted to accommodate the identified Blue Felt Lichen. A buffer will be maintained and the species will not be physically disturbed as a result of

the proposed expansion. A plan to monitor the condition and health of the Blue Felt Lichen occurrence will be prepared as part of the subsequent IA Amendment Application.

Overall, the effects of the quarry construction and operations on species at risk are expected to be negligible. Potential impacts will be mitigated as outlined below.

Employees will be made aware of the need to check areas for activity and nests before undertaking activities which would disturb established surfaces. Activities such as logging, and site clearing should be scheduled outside the April to mid-September nesting period for breeding birds. Lighting used at the site should focus downward and below the normal horizon, to limit visibility from a distance. With respect to blasting, this activity will be minimized when possible and concentrated in the spring and fall when species are generally absent (i.e., outside breeding and migratory periods).

It is expected that a condition of EA approval will be to develop a Wildlife Management Plan under the Industrial Approval (IA) process. The Wildlife Management Plan will establish appropriate mitigation measures to manage interactions with wildlife resources (avian species and their nests, species at risk, non-native plant species, etc.). If wildlife and/or species at risk concerns arise for which potential mitigation is unknown, Dexter staff will liaise with the appropriate regulatory groups and knowledgeable consultants to determine appropriate action.

### **6.3.10 Natural Areas and Wilderness**

#### Background

Natural designated areas in the vicinity of the site such as the Tidney River Wilderness Area and Provincial Parks such as Thomas Raddall and the Port L'Hebert Provincial Park are appreciated by locals and tourists alike. The proposed expansion of the Granite Village Quarry will affect a small proportion of the natural landscape at the site and will have a limited effect on visitors to the area who are looking for nature experiences. It is noted that site operations which generate noise and dust will have some, but limited, effects on natural areas and wilderness.

#### Significance and Mitigation

Overall, the effects of the quarry construction and operations on natural areas and wilderness are expected to be negligible. Potential impacts will be mitigated as outlined below.

Mitigation to reduce potential impacts of the quarry on Air Quality, Noise, and Light, will be applied to reduce potential impacts on Natural Areas and Wilderness. This will include routine procedures and best management practices such as dust control and light management will help to minimize impacts on natural and wilderness values at the site. A quarry Reclamation Plan will be maintained, including provisions for progressive reclamation where appropriate, to rehabilitate areas no longer required for aggregate production. In addition, quarry reclamation will also consider values important in conservation of biological communities and ecosystems, as well as changes in physical conditions that could affect those communities.

## **7.0 IMPACTS OF THE ENVIRONMENT ON THE PROJECT**

The quarry will not be impacted in general by weather, including high rainfall and precipitation. Aggregate products produced and stockpiled at the site are stable under varying conditions of rainfall and wind.

As part of the subsequent Industrial Approval (IA) process, a surface water management plan will be developed for the site, which will include consideration for extreme rainfall events. Integrity of any runoff management structures at the site will be inspected on a regular basis, in particular following major weather events. Corrective action will be undertaken, if needed, in a timely manner.

Changing climate may increase the operating season for transportation projects, and the need for aggregates produced by the quarry.

## **8.0 POTENTIAL CUMULATIVE IMPACTS**

Because of the remoteness of the location, all the potential impacts of the quarry operation (dust, noise, lights, blasting, traffic volume) are unlikely to be compounded by other development or human activity. However, considering that site operations are not expected to increase in frequency or scope from past use, and the amount of construction and roadwork in the area is not anticipated to increase significantly, the cumulative effect of these other developments (and other local activity) is not expected to change from past levels.

## **9.0 INDUSTRIAL APPROVAL CONDITIONS, MONITORING, AND REPORTING**

Monitoring is an integral part of the operation of the Granite Village Quarry and is dictated by the Pit and Quarry Guidelines and the Industrial Approval (IA) for the site. Typical monitoring at quarry sites includes surface water monitoring, groundwater monitoring, and blast monitoring (concussion and vibration). Noise and dust monitoring is typically conducted at the request of NSECC.

Surface water monitoring will be conducted as per the terms and conditions of the IA and is expected to include both background (upstream) and downstream water quality in watercourses potentially affected by quarry operations. It is expected that a condition of EA approval will be to develop a surface water management plan for the site, through the IA process. A surface water monitoring program will be included with the surface water management plan. Surface water monitoring locations will be identified and monitored to establish baseline surface water quality. The surface water monitoring network will allow for on-going monitoring to verify that surface water runoff from the quarry does not have an impact of downgradient receptors.

Groundwater monitoring will be conducted as per the terms and conditions of the IA. It is expected that a condition of EA approval will be to develop a groundwater monitoring program for the site under the IA process, and a network of groundwater monitoring wells will be constructed to establish baseline groundwater quality as well as existing groundwater table elevations. The monitoring well network is expected to include three industry standard monitoring wells. The monitoring well network will allow for on-going monitoring to ensure that potential groundwater impacts are identified.

Blast monitoring will be conducted as per the terms and conditions of the IA. Blast monitoring is required for all blasting events and includes measurement of air concussion and ground vibration at the nearest structures located around the quarry. Additionally, seismographs may be setup at other selected locations in the surrounding community to ensure that the blast parameters meet with those dictated by the stipulations in the Industrial Approval.

Other specific parameters that may be monitored will be included in the amended Industrial Approval.

All monitoring results are maintained by MEL and provided to NSECC as part of an Annual Report for the Quarry. If a monitored parameter exceeds a limit noted in the IA, MEL is required to immediately notify NSECC of the exceedance.

## 10.0 FUTURE PUBLIC AND STAKEHOLDER INVOLVEMENT

Public consultation and stakeholder engagement efforts undertaken to date are documented in Section 4 of this EA Registration Document. Project stakeholders and the general public will have an opportunity to provide feedback on the proposed quarry expansion project by providing written comments to the NSECC EA Branch during the project review period.

It is expected that a condition of EA approval will be to develop a Complaint Resolution Procedure for receiving, documenting, and responding to feedback received related to the quarry.

Quarry approvals typically include provisions to implement a Community Liaison Committee (CLC) at the request of NSECC. If a CLC is required, Dexter will seek participation from the local community as well as First Nations representatives.

## 11.0 PROJECT CLOSURE / RECLAMATION

The quarry will be reclaimed in accordance with NSECC requirements and industry standards. MEL maintains a Reclamation Plan for the quarry. As per the Terms and Conditions of the Industrial Approval (IA), the Reclamation Plan is updated every three years and submitted to NSECC for review. The Reclamation Plan includes provisions for progressive reclamation of areas that are no longer required for aggregate production or supporting activities. A quarry permit bond which reflects the total site disturbed area is maintained. The value of the bond is updated every three years in accordance with the updated Reclamation Plan to ensure that the bond value reflects the size and scope of future reclamation efforts at the site.

## 12.0 APPROVAL OF UNDERTAKING

MEL will comply with all provisions of the Nova Scotia Environment Act and Regulations. Following successful EA approval, an application for an amendment to the existing Industrial Approval will be submitted to NSECC.

## 13.0 FUNDING

No public or other government funding is involved in the execution of this undertaking. All costs are borne by MEL.

## 14.0 SIGNATURE AND DATE

March 15, 2023  
Date

  
Gary Rudolph, P.Eng.  
Director of Aggregates and Pavement Rehabilitation  
Dexter Construction Company Limited