

**ENVIRONMENTAL ASSESSMENT REGISTRATION
DOCUMENT**

Dean Clarke

**Proposed Sand and Gravel Quarry Operation
near Terrenceville Highway (Route 211) intersection
with Burin Peninsula Highway (Route 210)**

Department of Natural Resources File Ref. No. 711:10166

Prepared by:

Meridian Engineering Inc.

10 Thompson Street, Clarenville, NL

A5A 1Y9

March 20, 2019

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1.0 NAME OF UNDERTAKING

Sand and Gravel Quarry Operation, Lakely’s Brook (near Terrenceville), Burin Peninsula, NL (DNR File # 711:10166).

2.0 PROPONENT

2.1 Name of Corporate Body

Mr. Dean Clarke

2.2 Address

P.O. Box 176
Terrenceville
Fortune Bay, NL
A0E 2X0

2.3 President/Chief Executive Officer

Mr. Dean Clarke
5 Seaward’s Lane
Clarenville, NL
A5A1X1
709-427-1751

2.4 Principal Contact Person

Mr. Dean Clarke
5 Seaward’s Lane
Clarenville, NL
A5A1X1
709-427-1751

3.0 THE UNDERTAKING

3.1 Name of the Undertaking

Sand and Gravel Quarry Operation, Lakely’s Brook (near Terrenceville), Burin Peninsula, NL.

3.2 Purpose/Rationale/Need for the Undertaking

The purpose of the project is to develop additional sand and gravel quarry resources for supplying winter sand and other materials to various Clients in the region such as the Department of Transportation and Works (DTW), local municipalities, construction Contractors and the general public.

4.0 DESCRIPTION OF THE UNDERTAKING

4.1 Geographic Location

The proposed undertaking is located on the Burin Peninsula, approximately 1.8 km north of the intersection between the Terrenceville highway (Route 211) and the Burin Peninsula highway (Route 210), NTS Map Sheet 01M10 (see Figures 1, 2 and 3).

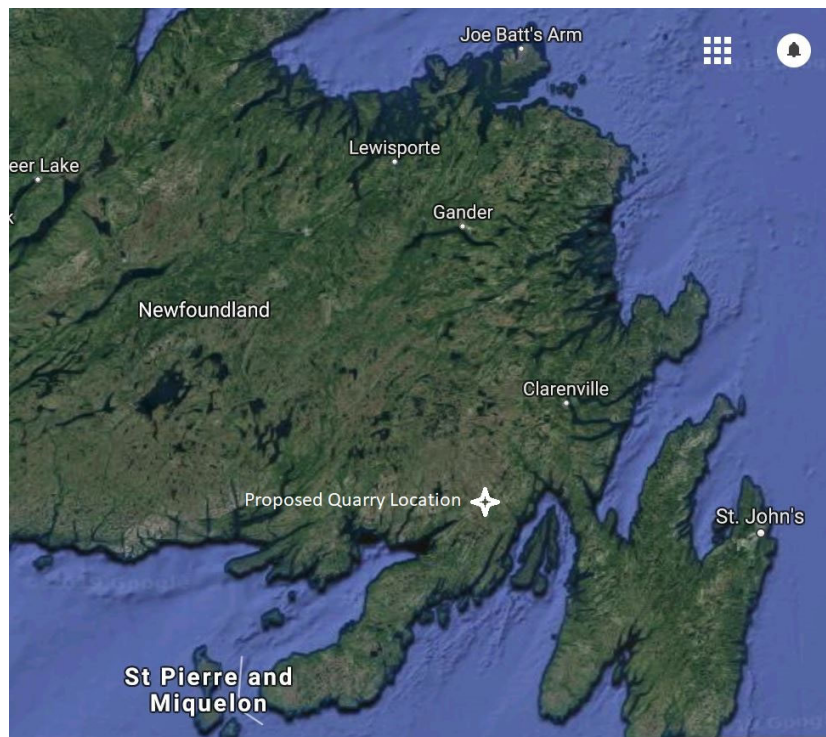


Figure 1: Location Plan

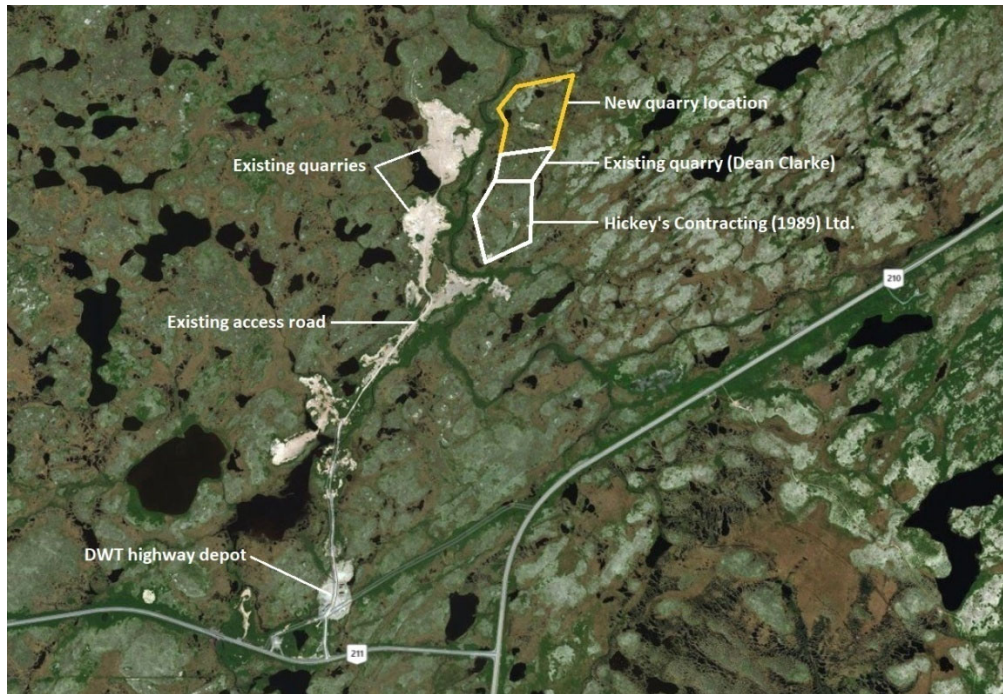


Figure 2: Map showing location of proposed quarry

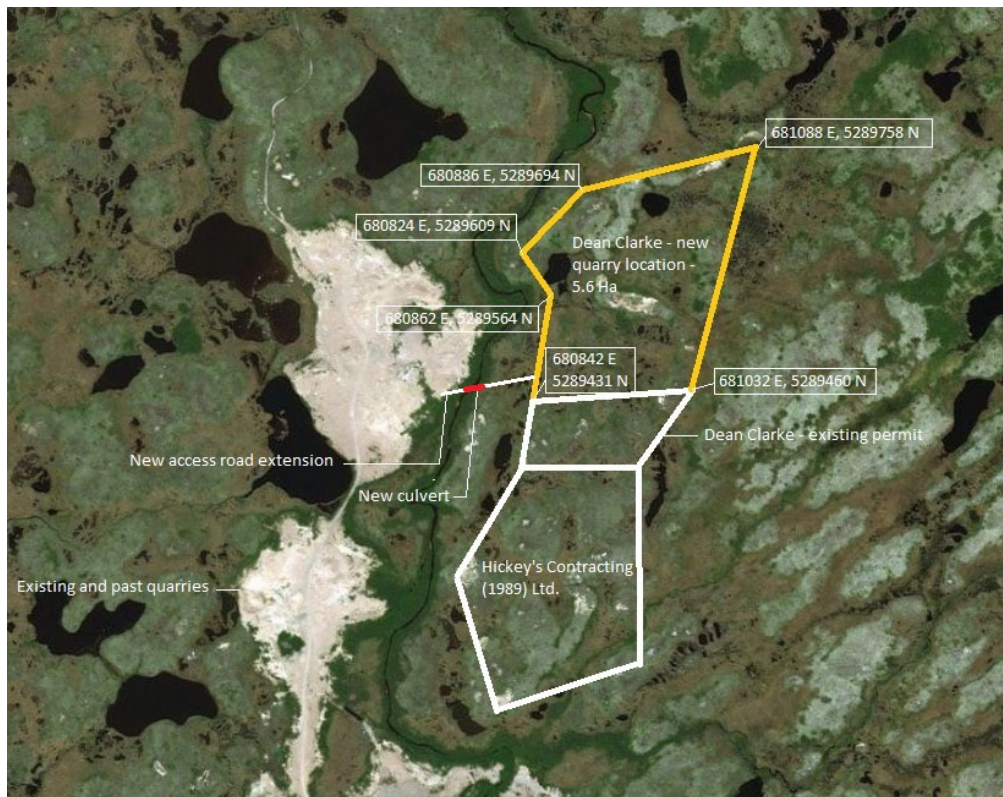


Figure 3: Map showing boundaries of proposed quarry ⁽¹⁾

⁽¹⁾ Property corners shown in UTM coordinates (NAD 83).

4.2 Physical Features

4.2.1 Site Description

The proposed undertaking will adjoin the proponent’s existing quarry in the same area. The quarry will be accessed primarily via an existing gravel road that has been used for many years to service other quarries in the immediate area (figure 2). The new quarry is bounded on the north and east by Crown Land, and on the south by the proponent’s existing property (figure 3). On the west side it adjoins a small stream referred to as Lakely’s Brook. This brook will be separated from the new quarry by a 50 m buffer of existing undisturbed vegetation that will be maintained throughout the life of the operation. There will be no buildings constructed on the site.

In the past, access to quarries in the area was provided via a gravel road that started at Route 211, near the Department of Transportation and Works (DTW) highway depot, and travelled through its operations area. From there it travelled north to the existing quarries, passing within 100 m of the proposed new quarry.

Prior correspondence with DWT has indicated that access through the DWT operations area may not be available in future, requiring the proponent to construct a section of new access road to bypass the DWT operations area (approximately 400 m). The approximate location of the new bypass road is shown on figure 4.

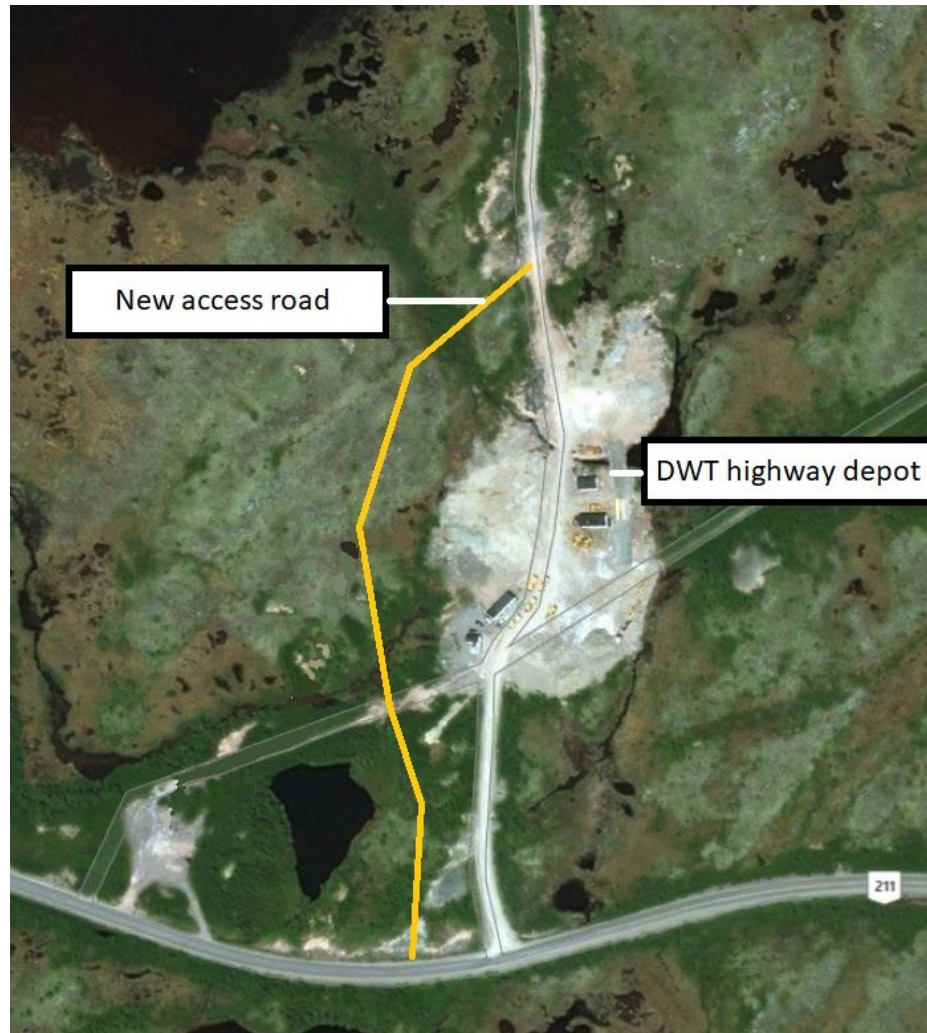


Figure 4: Approximate location of proposed bypass access road

On the northern end of the existing road, near the proposed new quarry, a section of new access road will also need to be constructed from the existing road to the new quarry. This will consist of an extension to the existing road of approximately 100 m. A culvert will be installed in this road where it crosses Lakely’s Brook, in accordance with regulatory and permitting requirements.

The size of the site to be developed is approximately 5.6 Ha.

4.2.2 Existing Physical and Biological Environment

The proposed quarry site is located in an area underlain by volcanic bedrock of the Long Harbour group, with surficial soils overlying this material being of glaciofluvial origin⁽²⁾. These soils generally consist of sand and gravel, with little or no outcropping bedrock, and minimal organic cover material present to support any large scale forest growth.

⁽²⁾ DNR Geoscience atlas database

The topography of the area is generally flat, with interspersed undulating hills. To the north, the topography slopes gently down towards Dunn’s Pond. Vegetation on the site is minimal, consisting of a thin organic/peat layer supporting the growth of lichens and mosses. Trees are generally non-existent in the quarry area, except for isolated and stunted scrub growth in some places.

Typical wildlife found in the area include black bear, moose, caribou, lynx, snowshoe hare, coyotes, beaver, mink and foxes.

Photos of the proposed site are shown below:



Photo 1 - looking NE from existing quarry at the north end of the proposed property (new quarry located across stream in background).



**Photo 2 - looking East across stream toward center of proposed quarry.
Route 210 runs along ridge in far background.**



**Photo 3 – looking across stream at south end of property. Access road
will traverse stream in this area.**



Photo 4 – looking south toward DWT depot (visible in far right background). Stream crossing to be constructed on left side of photo.

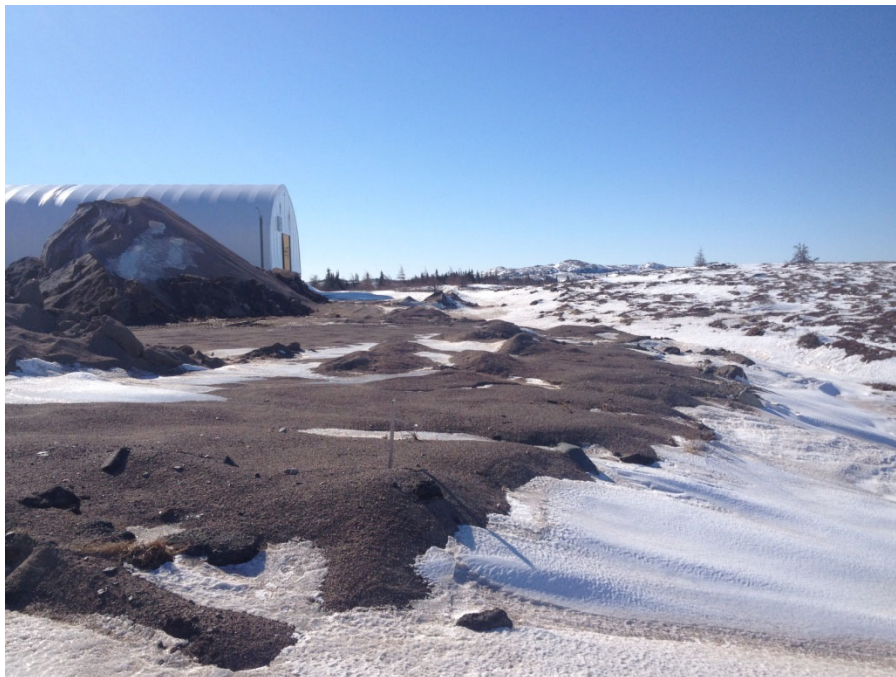


Photo 5 – showing west end of DWT storage building, looking south toward Route 211. New bypass road will be located to right of the DWT depot area.

4.3 Construction

The construction phase of the development will consist of the following four components:

- Site access upgrading;
- Clearing;
- Grubbing; and
- Pit development.

These activities will be carried out as follows:

4.3.1 Site Access

Access to the site will be primarily via an existing gravel access road which passes near the site through existing quarries. This road will be extended by approximately 100 m to access the new property. A culvert will be installed on this road extension where it crosses Lakely’s brook. This stream crossing and culvert will be sized and installed in accordance with requirements of all Federal and Provincial regulatory and permitting authorities.

At Route 211 near the DWT depot, a bypass road, if required, will be constructed around the DWT property. This bypass road will start at Route 211, and travel north around the DWST property as shown previously in figure 4, and on the Dept. of Fisheries and Natural Resources (Crown Lands Division) documents included in Appendix A.

4.3.2 Clearing

No clearing will be required at the quarry site itself, as the area is generally devoid of trees, except near the stream where they will be preserved as a natural buffer. A small amount of clearing will be required at the new bypass road near Route 211. Any clearing needed in this area will salvage all merchantable timber and be carried out in accordance with all requirements and permits of the Department of Fisheries and Land Resources.

4.3.3 Grubbing

All overlying organic material and topsoil located in the immediate area of the new quarry will be excavated and stockpiled near the perimeter of the site for subsequent re-use in re-habilitating the area once the deposit has been mined out. No grubbing or excavation will be conducted within 50 m of the adjacent stream, except as required to construct the access road.

4.3.4 Pit Development

The new quarry site will cover a total area of approximately 5.6 hectares when fully developed. Development will start in areas of the site which offer an elevated face from which to operate excavation equipment. Activities to be undertaken during this period will involve removal of organic and vegetative cover from the area to be developed, sloping of the quarry surfaces toward a low point in the quarry, and storing removed organic material in a location that will not promote sedimentation or water run-off.

A pit area will initially be developed which is capable of sustaining extraction operations for one to two years. This preparation activity is expected to take approximately two weeks. Any new pit development beyond this will depend on demand for sand products, and will expand each year in a similar manner, as required.

The proposed start of construction at the site will be June, 2019.

4.4 Potential Sources of Pollution during Construction

The construction phase of the work will involve vegetation removal and earth moving activities only. Potential sources of pollution during this period will include noise, air emissions from construction equipment, waste and litter from human activities, release of sediments due to site drainage occurrences, and accidental release of hydrocarbons from heavy equipment leaks or re-fueling activities.

4.4.1 Noise and Air Emission Pollution Mitigation

The use of heavy equipment may result in an increase in noise, vehicle emissions and air quality degradation as a result of stirring up dust during operations. Impacts related to these activities are expected to be minimal due to the remote location of the site in relation to any populated areas. This will further be reduced through use of the following mitigative measures:

- All heavy equipment and machinery will be provided with well-maintained mufflers that are compliant with all applicable Provincial and municipal noise regulations and bylaws;
- All motorized equipment will be fitted with air emission controls that meet or exceed Provincial regulatory requirements;
- All machinery will follow designated project routes;
- All machinery will be properly maintained.
- Dust control measures such as water application will be provided if required.

4.4.2 Waste Materials

Construction of the quarry will result in the generation of a minimal amount of domestic waste. All such materials will be collected and disposed of in accordance with Provincial Waste Management Regulations.

4.4.3 Site Run-off

Construction activities could result in the mobilization of some onsite particulate matter such as silt or clay particles during heavy precipitation events, and when constructing the stream crossing. This is expected to be minimal, however, as the sand deposits appear relatively clean and free of the type of materials which are most easily leached out by water. Construction carried out as part of the stream crossing will utilize coarse rock material that is not susceptible to erosion. However, the following mitigative measures will be used to further reduce the possible occurrence and effects of such instances to levels that are unlikely to be significant:

- Work will be scheduled to avoid periods of heavy precipitation if any run-off issues are expected;
- Excavated areas will be graded towards a low point in the proponent’s quarry to reduce/prevent any run-off from the site. As the quarry is composed primarily of sand, any water impacting the pit will typically leach down through the ground rather than create overland flow;
- Erosion control measures, such as filter fabric material, will be installed across any drainage routes, settling ponds, etc, as needed to prevent erosion or release of sediment laden water.
- New excavation footprints will be minimized by limiting any exposed areas to only those which are needed for production.

4.4.4 Accidents and Malfunctions

Accidents or malfunctions of heavy equipment could result in a spill of fuel, engine oil, or hydraulic fluid. The following mitigative measures will be utilized to reduce the potential effects of such occurrences to levels that are unlikely to be significant;

- Maintenance and servicing of equipment will be conducted off site;
- Emergency response oil spill kits will be maintained onsite at all times when the quarry is in operation, to respond to any accidental spills of deleterious substances in a quick and effective manner;
- All petroleum products will be handled in accordance with regulations governing the Storage and Handling of Gasoline and Associated Products under the Environmental Protection Act;
- A responsible worker trained in spill response measures will be present on site at all times that heavy equipment is being operated.

4.5 Operation

The typical quarry operation procedure to be employed at the site will be to first collect all organic overburden material from the area being excavated and stockpile it for future use. Only sufficient organic material will be removed at any given time to meet the near term needs of the quarry operation. At the currently anticipated levels of demand, this would likely require excavating approximately 5 to 10% of the total quarry area per year.

The quarry operation will see a sloped/vertical face being developed in the pit to allow a loader to dig into the face of the embankment to remove dry sand and gravel with minimal mechanical effort. This material will then be transported by a loader to a nearby mechanical screener, where it will be deposited into the equipment’s hopper. At this point a coarse screen will automatically remove any large rocks from the material before it enters the screener’s conveyor belt. The conveyor belt will carry the remaining material to multiple screens on the opposite end of the screener, where it will be automatically separated into different gradations, depending on customer needs.

All screened material will be stored in separate piles in the pit according to its gradation and intended use. Customers may potentially come to the quarry in dump trucks to collect the material, with their trucks being loaded by the proponent’s onsite loader. For other customers who require the material delivered to a specific location, the proponent will collect the material in a similar manner and transport it to the customer’s location. No crushing of materials is proposed at the site.

In all cases, material will typically only be screened as customer orders require. Waste and oversized rock will be stockpiled on site for future use.

Perimeter ditching is not expected to be required, as all run-off can be directed to areas within the quarry that will serve as a primary settling points. Undisturbed land adjoining the property to the east is generally flat to gently sloping, with minimal overland flow expected. Any such flow would be directed to the pit’s internal settling area for containment and drainage.

Equipment to be utilized on site will include:

- A tracked excavator during the site development stage (this equipment typically won’t be required for regular day to day operations at the quarry);
- Two front end loaders (wheeled) - (for use in obtaining material from the quarry face, moving it to the screener and loading the trucks);
- Two tandem dump trucks (for transporting material off-site)
- One mobile screener.

Operation of the pit will typically run from April to November, depending on demand for products.

4.6 Potential Sources of Pollution during Operation

The operational stage of the project will involve sand and gravel removal from the quarry, earth moving activities and screening of materials only. Potential sources of pollution during this period will include noise, air emissions from equipment, waste and litter from human activities, release of sediments due to site drainage occurrences and accidental release of hydrocarbons from heavy equipment leaks or re-fueling activities.

4.6.1 Air Quality/Noise

The use of heavy equipment may result in an increase in noise, vehicle emissions and air quality degradation as a result of vehicle movement activities. Impacts related to these activities are expected to be minimal due to the remote location of the site in relation to any populated areas, and will be further reduced by implementing the following mitigation measures:

- All heavy equipment and related machinery will be provided with well-maintained mufflers that are compliant with all applicable Provincial and municipal noise regulations and bylaws;
- All motorized equipment will be fitted with air emission controls meeting or exceeding Provincial regulatory requirements;
- All machinery will follow designated project routes;
- All machinery will be properly maintained.
- Dust control measures such as water application will be provided if required.

4.6.2 Waste Materials

Construction of the quarry will result in the generation of a minimal amount of domestic waste. All such materials will be collected and disposed of in accordance with Provincial Waste Management Regulations.

4.6.3 Site Run-off

Operational activities could result in the mobilization of some onsite particulate matter such as silt or clay particles during heavy precipitation events. This is expected to be minimal, however, as the sand deposits appear to be relatively free of the type of materials that are most easily leached out by water. However, the following mitigative measures will be used to further reduce the effects of any such occurrence to levels that are unlikely to be significant:

- Work will be scheduled to avoid periods of heavy precipitation;
- Excavated areas will be graded towards a low point in the quarry to reduce/prevent any run-off from the site. As the quarry is composed primarily of

sand, any collecting water is expected to typically drain down through the ground rather than follow an overland route;

- Erosion control measures such as filter fabric will be installed across any drainage routes, settling ponds, ditches, etc, as needed to prevent erosion and release of sediment laden water.
- Exposed excavation areas will be minimized by limiting the footprint area exposed at any given time to that which is necessary for production.

4.6.4 Accidents and Malfunctions

Accidents or malfunctions of heavy equipment could result in a spill of fuel, engine oil, or hydraulic fluid. The following mitigative measures will be utilized to reduce the potential effects of such occurrences to levels that are not likely to be significant;

- Maintenance and servicing of equipment will be conducted off site;
- Emergency response oil spill kits will be maintained on site at all times that equipment is operating to respond to any accidental spills of deleterious substances in a quick and effective manner;
- All petroleum products will be handled in accordance with regulations governing the Storage and Handling of Gasoline and Associated Products under the Environmental Protection Act;
- There will be a responsible worker trained in spill response measures on site at all times that heavy equipment is being operated there.

4.7 Potential Resource Conflicts during Operation

The proposed quarry site is located adjacent to a small stream which could be impacted by excess sediment run-off. With proper environmental protection measures designed to prevent such release it is not anticipated that the quarry operation will have any significant impact on this watercourse. Preventative measures to be employed to ensure this include the following:

- Minimal overland flow is expected from outside the quarry area, but if it does occur it will be controlled by ditching the perimeter of the site upslope of the working area to prevent such flows from entering the site;
- Drainage within the quarry will be controlled by grading all excavation areas toward a low point in the pit. This area will act as a collection point/settling pond for any surface drainage that should occur;
- Erosion will be prevented/mitigated by clearing only sufficient land to accommodate the immediate demands of the marketplace as the quarry advances.

- Filter fabric will be used if needed to prevent migration of sediment outside the quarry area;
- A buffer zone of at least 30 m will be maintained between the quarry site and the stream. Where native brush currently exists in this area, it will be left undisturbed to provide sediment control, noise and visual barriers for the quarry operation;
- No fuel will be stored on site.
- Waste materials will be taken away on a daily basis.
- Spill kits will be maintained on the site.
- An employee having spill response training will be present at any time that heavy equipment is being operated.

4.8 Decommissioning/Rehabilitation

Upon completion of quarry operations, site rehabilitation shall be carried out in accordance with the following:

- All pit slopes will be graded to a maximum 30° slope.
- All organic overburden that was originally removed during the construction phase and stored on site will be reinstalled over the disturbed surfaces.

4.9 Occupations

The site construction and operation phases of the project are expected to employ the following occupations, in accordance with the National Occupational Classification, 2011.

4.9.1 Construction Phase

- 1 Site Foreman/Supervisor (7302).
- 1 Heavy Equipment Operator (7521)

4.9.2 Operations Phase

- 1 Pit Manager (7302)
- 1 Pit Foreman/supervisor (7302)
- 2 Heavy Equipment Operators – (1 Excavator, 1 Loader) (7521)
- 2 Truck Drivers (7521)
- Heavy Equipment Mechanics (7312) located offsite.

4.9.3 Hiring Practices

All work will be carried out by direct hiring using the proponent’s own employees. No contracting out is anticipated.

4.10 Project Related Documents

A quarry permit has been requested from the Department of Natural Resources for the undertaking, as described in DNR File Reference #711:10166, and approval to construct a bypass road near the DWT depot has been undertaken with the Crown Lands Division of the Dept. of Fisheries and Land resources (Appendix A).

All permits and approvals required to undertake construction by Government regulatory authorities will be obtained prior to any construction taking place.

5.0 Approval of the Undertaking

Permits and approvals required to proceed with the undertaking will include approvals from the following agencies:

- Department of Fisheries and Land Resources (Crown Lands Division)
- Department of Fisheries and Land Resources (Forestry Division)
- Department of Fisheries and Land Resources (Fish and Wildlife Division)
- Department of Municipal Affairs and Environment
- Department of Natural Resources
- Dept. of Tourism, Culture, Industry and Innovation
- Service NL
- Department of Transportation and Works
- Additional referral agencies as required by the above organizations.

If new access road passes under a power distribution line, approval will also be required from Newfoundland Power.

6.0 SCHEDULE

The proposed schedule for the undertaking will be as follows;

- Registration document submission – March, 2019
- Government Review and Decision - May, 2019
- Commencement of pit construction - June, 2019
- Commencement of pit operations – July, 2019

The purpose of the above dates is to provide sufficient time for the proponent to develop the quarry site and have it operational in time to be used for the 2019 year.

7.0 FUNDING

Funding for this project will be solely provided by the proponent.

8.0 SUBMISSION

DATE: _____

SIGNATURE: _____

NAME: Dean Clarke

Position: President/Owner

9.0 CLOSURE

Information presented herein is based on information and details provided by the proponent and other parties, and is intended solely for the use of the proponent. Any use that a third party may make of this document, or any reliance upon, or decisions made based upon it, shall be the sole responsibility of such parties.

APPENDIX A

ACCESS ROAD PERMIT



Government of Newfoundland and Labrador
Fisheries and Land Resources

In Reply Please Quote
File Reference No.
1025548

FEB 13, 2018

DEAN R CLARKE
P.O. Box 176
Terrenceville NL
A0E 2X0

Dear Sir/Madam:

RE: APPLICATION NO.: 153406
TYPE: Permission
PURPOSE: Permission to construct road for access to Quarry
LOCATION: English Harbour East Access Road

This will acknowledge receipt of the above referenced application for a Crown title. The application has now been registered and via a copy of this letter, the Department and/or agencies on the attached schedule have been asked to forward their comments and recommendations on your application to the Regional Lands Office.

Your application will be reviewed and a final decision will be made when the recommendations have been received from these Departments and/or agencies.

To assist inspectors in locating the area applied for and to avoid delays in processing your application it is advisable to place your name and application number on the site. Your application is being processed for the site indicated on the attached map.

Please note that the land is not to be occupied until you receive a fully executed title document.

If you require any additional information concerning the processing of this application please contact the Regional Lands Office at the address below.

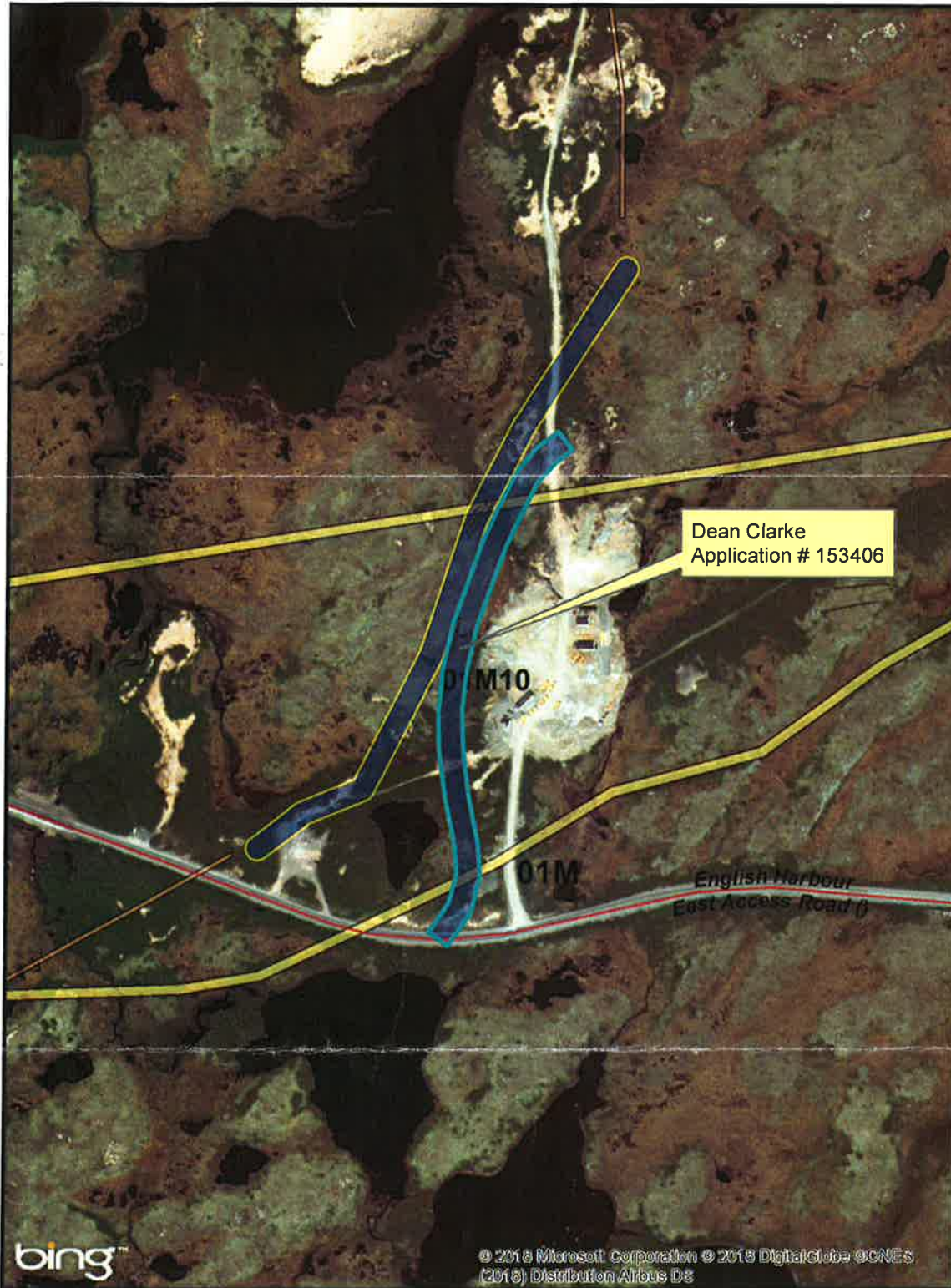
Yours truly,


LANDS OFFICER
Attachment(s)

Box 8700, St. John's, NL, Canada A1B 4J6

t (709) 729 2654 f (709) 256 0726 www.gov.nl.ca

Government of Newfoundland & Labrador Department of Fisheries & Land Resources



NOTE TO USERS

The information on this map was compiled from land surveys registered in the Crown Lands Registry.

Since the Registry does not contain information on all land ownership within the Province, the information depicted cannot be considered complete.

The boundary lines shown are intended to be used as an index to land titles issued by the Crown. The accuracy of the plot is not sufficient for measurement purposes and does not guarantee title.

Users finding any errors or omissions on this map sheet are asked to contact the Crown Titles Mapping Section, Howley Building Higgins Line, St. John's Newfoundland.

Users finding error or omissions can contact the Crown Titles Mapping Section by telephone at 729-0061. Some titles may not be plotted due to Crown Lands volumes missing from the Crown Lands registry or not plotted due to insufficient survey information.

The User hereby indemnifies and saves harmless the Minister, his officers, employees and agents from and against all claims, demands, liabilities, actions or cause of actions alleging any loss, injury, damages and matter (including claims or demands for any violation of copyright or intellectual property) arising out of any missing or incomplete Crown Land titles, and the Minister, his or her officers, employees and agents shall not be liable for any loss of profits or contracts or any other loss of any kind as a result.

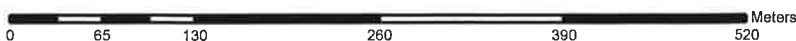
For inquiries please contact a Regional Lands Office.
Corner Brook - 637-2390
Gander - 256-1400
Clareville - 466-4074
St. John's - 729-2654
Goose Bay - 896-2488



Crown Lands Administration Division

Scale 1:5,000

Compiled on September 25, 2017



SCHEDULE OF REFERRAL AGENCIES

Rob May, LAND MANAGEMENT OFFICER
Department of Municipal Affairs
709-466-4073

GOVERNMENT SERVICE CENTRE
SERVICE NL
709-466-4060

SHAWN AVERY, FORESTRY DIVISION
Forestry & Agrifoods AGENCY
709-466-7439

Dept. of Natural Resources- Mines

709-729-5634

SUSAN GEORGE, WATER RESOURCES, MGMT DIV.
Dept. of Municipal Affairs & Environment
709-729-2563

Provincial Archaeology Office
Martha Drake
709-729-2462

NL Power
Byron Spencer ✓
709-737-5381

Bell Aliant
Brian Power

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1800 694 9313