

January 29, 2018

Government of Newfoundland and Labrador
Minister of Municipal Affairs and Environment
P.O. Box 8700
St. John's, NL A1B 4J6

Attention: Director of Environmental Assessment

Dear Sir/Madam:

Re: Harbour Arterial Mineral Workings Area Expansion
Submission of Environmental Assessment Registration Document

Please accept the attached registration document for the Harbour Arterial Mineral Workings Area Expansion located between Paddy's Pond and the current Harbour Arterial Mineral Workings Area (HAMWA).

If you have any questions or require any additional information, please do not hesitate to contact the undersigned.

Sincerely,



Gerald Kennedy, B.Sc.
Manager, Quarry Materials

**Harbour Arterial Mineral Workings Area Expansion
Environmental Assessment Registration Document**

January 29, 2018

1. NAME OF UNDERTAKING:

Harbour Arterial Mineral Workings Area ("HAMWA") Expansion

2. PROPONENT:

(i) Name of Corporate Body:

Department of Natural Resources, Mineral Lands Division

(ii) Address:

Department of Natural Resources
P.O. Box 8700
St. John's, NL
A1B 4J6

(iii) Minister:

Hon. Siobhan Coady
Minister of Natural Resources
Department of Natural Resources
7th Floor, Natural Resources Building
50 Elizabeth Ave.
P.O. Box 8700
St. John's, NL A1B 4J6
Telephone: (709)729-2920

(iv) Principal Contact Person for purposes of environmental assessment:

Gerald Kennedy
Manager, Quarry Materials Section
Mineral Lands Division, Department of Natural Resources
P.O. Box 8700
St. John's, NL A1B 4J6
Telephone: (709)729-6447

3. THE UNDERTAKING:

(i) Nature of the Undertaking

This project involves the expansion of the largest bedrock aggregate quarry site within the greater St. John's area (HAMWA) to meet growing demands for aggregate required for construction purposes. Specifically, the proposed project involves the development of surface quarries for the purpose of removing sand, gravel, and rock (quarry material) to support infrastructure developments on the northeast Avalon Peninsula. Related uses may include the

construction of temporary buildings (e.g., offices and garages), recycling and re-purposing construction materials and remediation of contaminated soils.

As part of the Government of Newfoundland and Labrador's "Way Forward Initiative", DNR is researching the recycling of concrete and asphalt for road and civil construction applications. The recycling/re-purposing of these materials is common practice in other parts of the country and is often even a requirement in road building applications as it results in better quality roads, lower production costs, and the reduction in the use of natural resources and reduced waste in the landfills. Activities involved in these applications would entail stockpiling and crushing of used concrete and repurposing asphalt, similar to that involved in current hot mix plant operations.

DNR also supports the remediation and repurposing of contaminated soils as these operations reduce the amount of waste generated in landfills and also support local businesses. Currently the HAMWA is the only area approved for soil remediation in and around the northeast Avalon Peninsula. As a pilot project under the Government's Way Forward Initiative, DNR is seeking uses for this recycled material.

(ii) Purpose/Rationale/Need for the Undertaking:

DNR has been seeking alternative sources to fulfill the aggregate needs of the Northeast Avalon over the past 5 to 10 years (e.g., Gear Pond Aggregate Quarry (EA Registration 1704), East White Hills area). These sites, although containing exceptional aggregates suitable for construction and infrastructure applications, could not be developed for various land use conflicts (e.g., protected public water supply areas, municipal zoning restrictions). The area outlined in this proposal is currently the only known possible developable source of quality aggregates on the Northeast Avalon.

The proposed expansion of the HAMWA is a source of bedrock that is suitable for the production of granular and hot-mix paving aggregates. The bedrock is overlain by generally 1 to 3 metres of glacially derived material that can be used for mixing with crushed bedrock to create Class A/B materials and also as low-quality applications such as fill.

This project was previously registered with Environmental Assessment and was released in 2013 (Reg. 1703; Appendix A) but no work was conducted upon the project's release. As per section 17.1(c) of the Environmental Assessment Regulations, if work has not commenced on a project within 3 years of the release date, the release is considered null and void. It is for this reason that this project is being registered again.

4. DESCRIPTION OF THE UNDERTAKING:

(i) Geographic Location and Access

The project is located in eastern Newfoundland, on the north eastern portion of the Avalon Peninsula (Figures 1). The 78.3 hectare proposed mineral workings area lies within the municipal boundaries of the City of St. John's, north of Paddy's Pond (Figures 2 and 3) and is immediately south of the current Harbour Arterial Mineral Workings Area ("HAMWA") (Figure 4). The site is bound to east and west by the Trans-Canada Highway (TCH) and Conception Bay South (CBS) Bypass respectively (Figure 5). The UTM coordinates outlining the boundary of the proposed extension are provided on Figure 6.

Access to the project area will be gained from the TCH and CBS By-pass via the existing network of roads contained within the HAMWA, and through planned road reservations that provide entry to the new quarry operations planned under this registration document. Road reservations within the project area will be determined at a later date.

Future access may be required off the Paddy's Pond overpass to sites in the southern portion of the area. The construction of a new access in this location would require approval from the Department of Transportation & Works and the City of St. John's.

(ii) Physical Features

Canada can be broken down into seven physiographic regions. Of concern for this project is the Appalachian Region which covers Newfoundland and Labrador and the Maritimes. The project area has relief ranging from 10s of metres to 250 metres above sea level (ASL) and is composed of a mixture of sedimentary rocks and granites. The uplands are rugged and rocky due to erosion; lower areas have a rolling topography.

Ecologically, the area is located in the Maritime Barrens eco-region of Canada. The eco-region is marked by foggy, cool summers and short, relatively moderate winters along the coast and colder inland. The mean annual temperature is approximately 5.5°C. The mean summer temperature is 11.5°C and the mean winter temperature is -1°C. The ecoregion ranges from sea level to about 250 metres ASL in elevation and is comprised predominantly of a mixture of late Precambrian and Paleozoic sedimentary rocks and granites. The uplands are rugged and rocky, but elsewhere they present a rolling terrain of low relief. The surface of the uplands is dominated by rolling to hummocky, sandy moraine deposits and is associated predominantly with humo-Ferric podzolic soils. This eco-region is part of the Boreal Shield Eco-zone. The major communities include Channel-Port aux Basques, Bonavista, St. John's, Marystown, Grand Bank, and Carbonear.

Plant species in the area are typical of boreal forest species of this ecoregion. The area can be characterized as mostly tree-covered, consisting mainly black spruce, balsam fir, shrubs and mosses, with several boggy areas, some intermittent streams and minor rock outcrops. The area is home to moose, lynx, hares, ducks and a variety of other bird species and other small animals. The two ponds, Paddy's Pond and Three Arm Pond located to the south and west of the project area respectively, contain several species of fish. There is a single small stream that transects the most southern portion of the project area; the stream flows southwest into Paddy's Pond from the east side of the TCH, immediately north of the Paddy's Pond overpass.

The bedrock geology is mapped as Conception Group, Drook Formation which consists of green silicious siltstone and sandstone and silicified tuff. The area is covered by a till veneer with generally 5-15% silt to clay. Topographically, there is a small downhill gradient as you travel from the northern portion to the southern portion of the site.

(iii) Development

The development of the proposed quarry area will occur in a number of phases:

1. Quarry materials exploration
 - a. An Application for Exploration Approval was submitted to the Department of Natural Resources, Mineral Lands Division for approval of exploration work on the property. The approval for this program was granted on October 25, 2017 under approval number E170300 (see attached).
 - b. The exploration work included the use of a tracked excavator to dig test pits (n=39) at approximately 100 metre spacing's. Test pits ranged in depth from less than 0.5 metres depth to approximately 3 metres in depth. The purpose of the program was to map the depth of overburden throughout the project area to assist in the layout of quarry sites should the project be released from Environmental Assessment.
 - c. DNR obtained a commercial cutting permit in late 2017 (Permit Number 17-01-02021) in order to cut trails throughout the project to allow. The trails were cut only wide enough to allow the small excavator to travel from site to site safely. As directed by the Department of Fisheries and Land Resources ("Forestry"), no harvesting was conducted; instead all cut timber was stacked for harvesting at a later date.
 - d. Test pits were dug and then backfilled immediately after all necessary information had been obtained (e.g., measurements, photos, etc.). Each site was remediated (i.e., backfilled with excavated till/gravel material and topped with the excavated topsoil and vegetation) prior to moving onto the next test-pit.
2. Timber harvesting
 - a. Historically, the MUN Woodlot contained an arboretum. This has since been reverted back to the Crown and falls under the Forestry Management Plan.

- b. This area is approved under a 5 year plan (2017-2021) as a commercial harvesting area named F-4C Paddy's Pond.
 - c. All cutting and clearing at the site will be completed under the direction of Forestry via a commercial harvester. Forestry had organized to have the area cleared by a commercial harvester prior to the DNR exploration program; however the commercial harvester backed out of the project in late 2017.
3. Access:
- a. Several hundred metres of new access will be developed along road reservations to be established or extended from existing roads within the HAMWA. DNR will identify the road reservations at specific locations prior to accepting quarry permit applications.
 - b. The existing 'Right-in' and 'right-out' accesses from the existing Mineral Workings Area are not suitable for the current freeway classification of adjacent roadways – TCH and CBS By-pass. As a result, the Department has submitted an application (October 2, 2017) to construct an access off the Paddy's Pond overpass in accordance with Department of Transportation and Works' standards. The estimated length of the access road is 150-350 metres.
 - c. A new connector road from Paddy's Pond interchange to Route 2 has been proposed, but the construction date is still unknown by DNR. The proposed expansion of the HAMWA offers an opportunity to have the road partially funded by quarry leasees wanting to avail of the aggregate source.
4. Quarry area:
- a. DNR submitted an application to Crown Lands in June 2017 to obtain title to the project area. Gaining title to the area would provide greater control of access roads within the project area, thus more potential for maximizing the resource.
 - b. An exploration program was conducted in early December, 2017 which included the excavation and remediation of 39 test pits under an Exploration Approval (E170300). The information from this program will be used to assist in the layout (e.g., size and orientation) of quarry sites.
 - c. Trees will be harvested via commercial harvesting through Forestry.
 - d. Stripping of vegetation and organic material
 - i. A minimum 50 metre naturally vegetated buffer will be maintained where possible along all waterbodies and wetlands to protect sensitive riparian and aquatic species, and their habitat.
 - ii. Where possible, vegetation clearing or excessive noise will be conducted outside the nesting, breeding and brood rearing season from May to mid-July.
 - iii. Topsoil cleared prior to or throughout the course of the quarry operation will be stockpiled and retained for rehabilitation purposes
 - iv. The Department is committed to minimizing the visibility of the operations from the TCH.

1. A 90 metre (minimum) naturally vegetated buffer will be maintained between the operations and the TCH.
2. Berms will be constructed along the boundaries of highly visible areas and will be vegetated with fast growing trees.
- v. In an effort to prevent runoff into nearby water bodies, stripping of vegetation will be limited to that required for the current construction season.
- e. Construction of settling pond(s) (if required).
- f. Phased development of quarry operations
 - i. Excavation, drilling, blasting, crushing/screening, washing (if required), stockpiling and loading of quarry materials (rock, sand and gravel).
- g. The HAMWA expansion area is a strategic location vital for transportation of product to market as it is close to the major highway routes while still remaining on the outer limits of the City.

DNR will begin designing the layout of quarry sites within the project area upon the project's release from Environmental Assessment. The assigning of quarry sites to companies/individuals is anticipated to be completed through a Request for Proposals process. Once quarry permits/leases have been issued, the development of quarry sites may begin within 30 days.

(iv) Operation

The project area will be regulated under the *Quarry Materials Act, 1998* and the *Mining Act, 1999*. Operations may include, but are not limited to, the clearing of overburden material to expose sand and gravel deposits and/or bedrock. Sand and gravel deposits will be excavated directly and processed; bedrock will first be drilled and then blasted with explosives prior to excavation and processing. Processing includes crushing, screening, washing and stockpiling quarry materials using various types of equipment such as excavators, front-end loaders, primary, secondary, and tertiary crushers including complete conveyer systems to allow production of various aggregate end-products. Other associated equipment may include asphalt and concrete batch plants and other commercial equipment as permitted by City of St. John's and Department of Natural Resources Regulations. Various sizes of dump trucks will be used for transportation to market. Non-licenced dump trucks (e.g., rock trucks) may be used within the project area, but only licenced trucks will be used on the access roads and the TCH.

Activity at the site will likely be periodic from April to November annually; however, some operators may set up for crushing operations year round. Quarries are inspected regularly by the Department of Natural Resources' Quarry Materials Compliance Officers to ensure compliance with the *Quarry Materials Act, 1998* and *Mining Act, 1999* (if applicable), and terms and conditions of a quarry permit/lease.

The life expectancy of the operation is estimated to be 20-25 years, but this estimate is largely dependent on the demand for quarry materials in the region and the volume of aggregates available. Operations will be conducted in a logical, staged sequence to streamline and minimize the cost of final rehabilitation. Under a quarry lease, an approved development, rehabilitation, and closure plan along with financial assurance is required by the Department of Natural Resources. These plans will be designed by professional geotechnical engineering consultants and will comply with the *Quarry Materials Act, 1998*, *Quarry Materials Regulations, 1998*, the *Mining Act, 1999*, and *Mining Regulations, 2000*.

Potential Sources of Pollutants:

Possible sources of pollutants include site drainage, noise, airborne emissions and possible fuel or oil spills.

- During development, as quarry material is excavated and moved from the site, there is potential for off-site drainage. Sedimentation control structures (e.g., silt fences, ditches, rock check dams, etc.) will be installed where recommended by appropriate departments through the Department of Natural Resources' quarry permit referral process. Any off-site runoff must conform to the *Environmental Control Water and Sewage Regulations, 2003*.
- Domestic waste generated will be collected and disposed of as per the *Waste Management Regulations, 2003*.
- All equipment on site will be furnished with appropriate emission and noise control devices and all vehicles will be properly maintained to minimize noise and exhaust.
- Petroleum products will be handled and stored as per *Storage and Handling of Gasoline and Associated Products Regulations, 2003* and associated products regulations, under the *Environmental Protection Act SNL 2002*.

Potential Resource Conflicts

- This area is adjacent to Paddy's Pond, an area used by locals for recreational purposes such as fishing, boating, float plane, etc.
- The project area may be visible from the TCH, but only to east bound traffic. The use of earthen and tree berms may help reduce the visual impacts as outlined in section 4.d(iv).
- The project area is located approximately 250 metres west of the Galway Development on the east side of the TCH. This portion of the Galway Development project will be industrial. As the Galway project progresses, more quarry materials will be required to support local infrastructure (roads, concrete, asphalt, etc.). The HAMWA expansion, given its proximity to the project would prove as a great local source of quality aggregate, minimizing costs to consumers, and reducing wear and traffic to the local road network and highways.
- Currently there is an incomplete road that leads from the Galway development to the TCH. This indicates future plans to install an underpass that intersects the TCH into the existing

HAMWA. This underpass will allow transportation of aggregates to the Galway project without the need to travel on the TCH (Figure 5).

- Traffic along the TCH may be briefly interrupted to ensure safety of the travelling public during blasting operations.

(v) Occupations, employment opportunities and hiring:

Occupations at the project area are dependent on the number of quarry leases issued and the volume of work secured by the companies. The Department of Natural Resources (Mineral Lands Division) estimates that 6 or 7 quarry leases will be issued with each lease employing:

- 3 - Heavy Equipment Operators (e.g., excavator, loader and crusher operator) (7421)
- 2 - Dump truck drivers (7411)
- 1 - Quarry foreman/supervisor (8221)
- 1 - Laborer (7611)
- 1 - Heavy Equipment Mechanic (7311)

Although the Department of Natural Resources, Mineral Lands Division is the proponent for this project, DNR will not be operating the site. The purpose of this registration is to use it as an instrument to issue quarry tenure to other companies. Exact details relating to staffing or operations at the site are unknown.

For quarry projects, the actual development and operation of the site essentially involve the same activities (e.g., clearing of land, moving materials around and from the site). It is expected that the same staff will be required to develop and operate the site.

Quarry operations are largely dependent on the work or contracts obtained by the company/individual. As such, the exact schedule of operations will vary month to month and year to year. During busy years, activity at the site may continue as long as weather and ground conditions allow (e.g., April – November), while in slower years, activity may be intermittent throughout the year.

Hiring will be largely dependent on the company or companies who obtain quarry tenure here. Depending on the size of a company's existing workforce and current/upcoming contracts, the project may be operated with the same staff, or new staff may need to be hired. In many cases, companies have several quarries spread geographically across the province or a region to provide materials for projects in those areas; or have depleted their existing resources. The addition of a specific quarry tenure will likely not result in the addition of staff, merely the movement of staff (and equipment) from one resource to another.

(vi) Project Related Documents

- Previous Environmental Assessment Registration Document submitted for this project:
Harbour Arterial Mineral Workings Area Expansion Environmental Assessment Registration Document (Registration Number 1703). (Appendix A)

- Exploration Approval from DNR (Mineral Lands Division)
Exploration Approval (50 Test Pits) for Mineral Lands Division, Department of Natural Resources on MUN Woodlot Property, NTS 1N/07, Part B of MUN Woodlot. Approval E170300. (Appendix B)
- Commercial Cutting Permit (Forestry Services Branch, Department of Fisheries and Land Resources)
Commercial Cutting Permit Number 17-01-02021 (Appendix C)

5. APPROVAL OF THE UNDERTAKING:

<u>Permits/Approvals</u>	<u>Issuing Department/Agency</u>
Quarry Permit	Mineral Lands Division , Department of Natural Resources
Quarry Lease	Mineral Lands Division, Department of Natural Resources
Commercial Cutting Permit	Forestry Services Branch, Department of Fisheries and Land Resources
Operating Permit	Forestry Services Branch, Department of Fisheries and Land Resources
Highway Access Permit	Department of Transportation & Works
Water Use Licence	Water Resources Management Division, Department of Municipal Affairs and Environment
Development Permit	City of St. John's

*NOTE: All harvesting/salvaging of timber will be arranged by Forestry Services Branch, Department of Fisheries and Land Resources.

6. SCHEDULE:

Pending approval, quarry development may begin in certain areas as early as Spring 2018. Some of the issued quarry sites may not be developed until later (2019 – 2020).

7. FUNDING:

The approximate cost of the project is unknown and will depend on the level and type of activity (e.g., sand and gravel versus rock quarry). The approximate development costs are \$500,000 CAD per quarry lease, and this will be funded by the companies that are issued the quarry tenure.

8. SUBMISSION:

January 29, 2018
Date

Gerald Kennedy
Gerald Kennedy
Manager Quarry Materials, Mineral Lands Division,
Department of Natural Resources

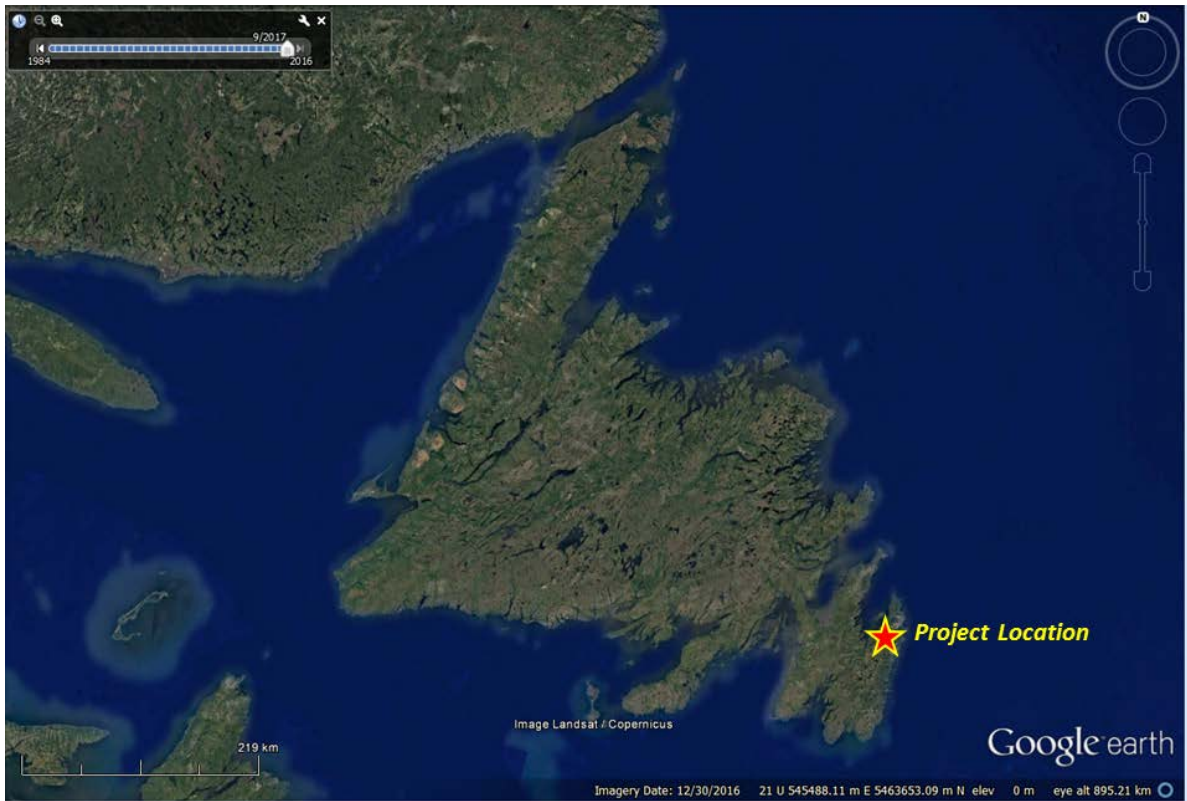


Figure 1: The project is located in eastern Newfoundland on the Avalon Peninsula.

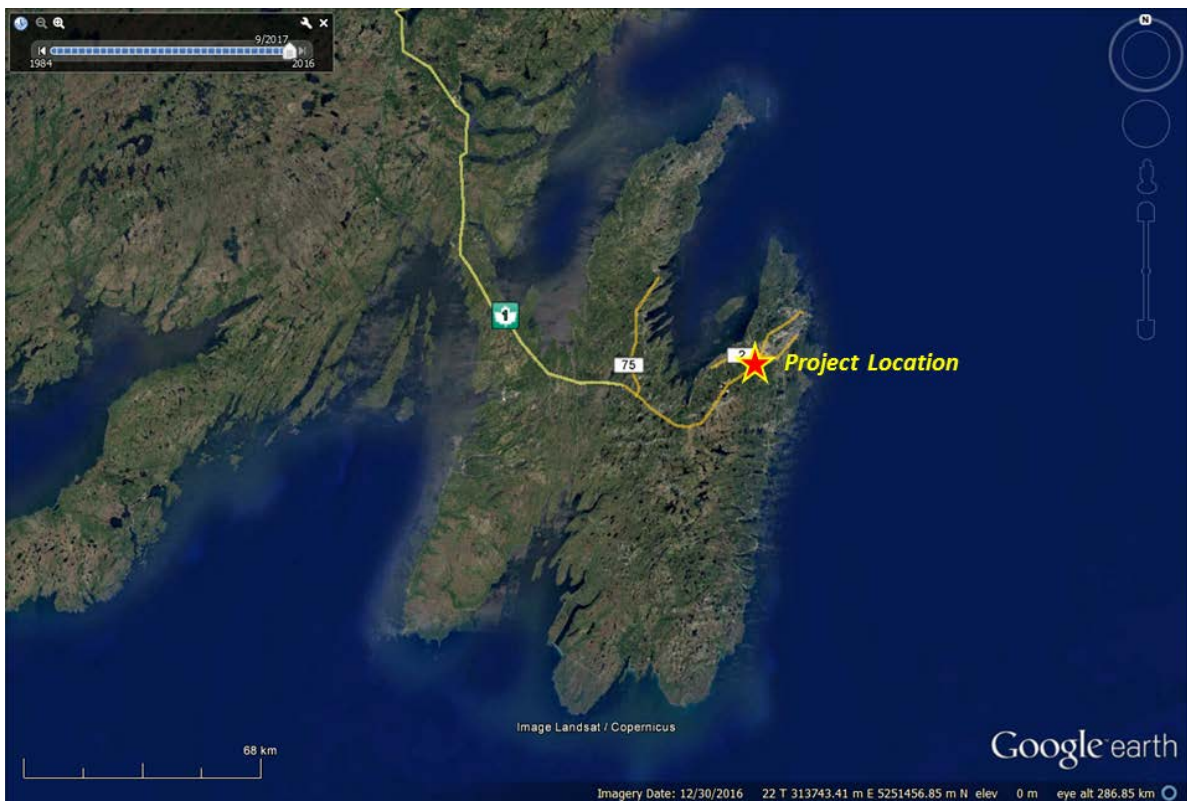


Figure 2: The project on the northeast Avalon Peninsula, within the municipal boundaries of the City of St. John's.

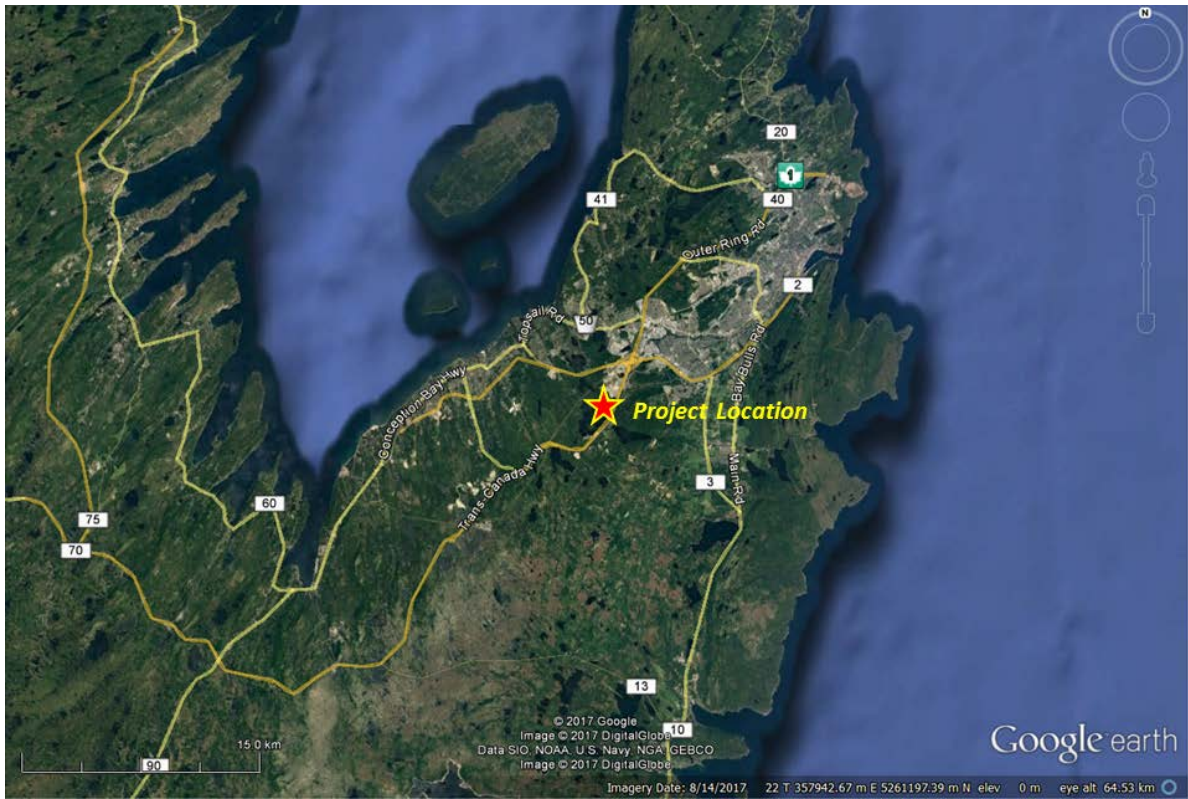


Figure 3: The project is located on the east side of the Trans-Canada Highway, north of Paddy's Pond.

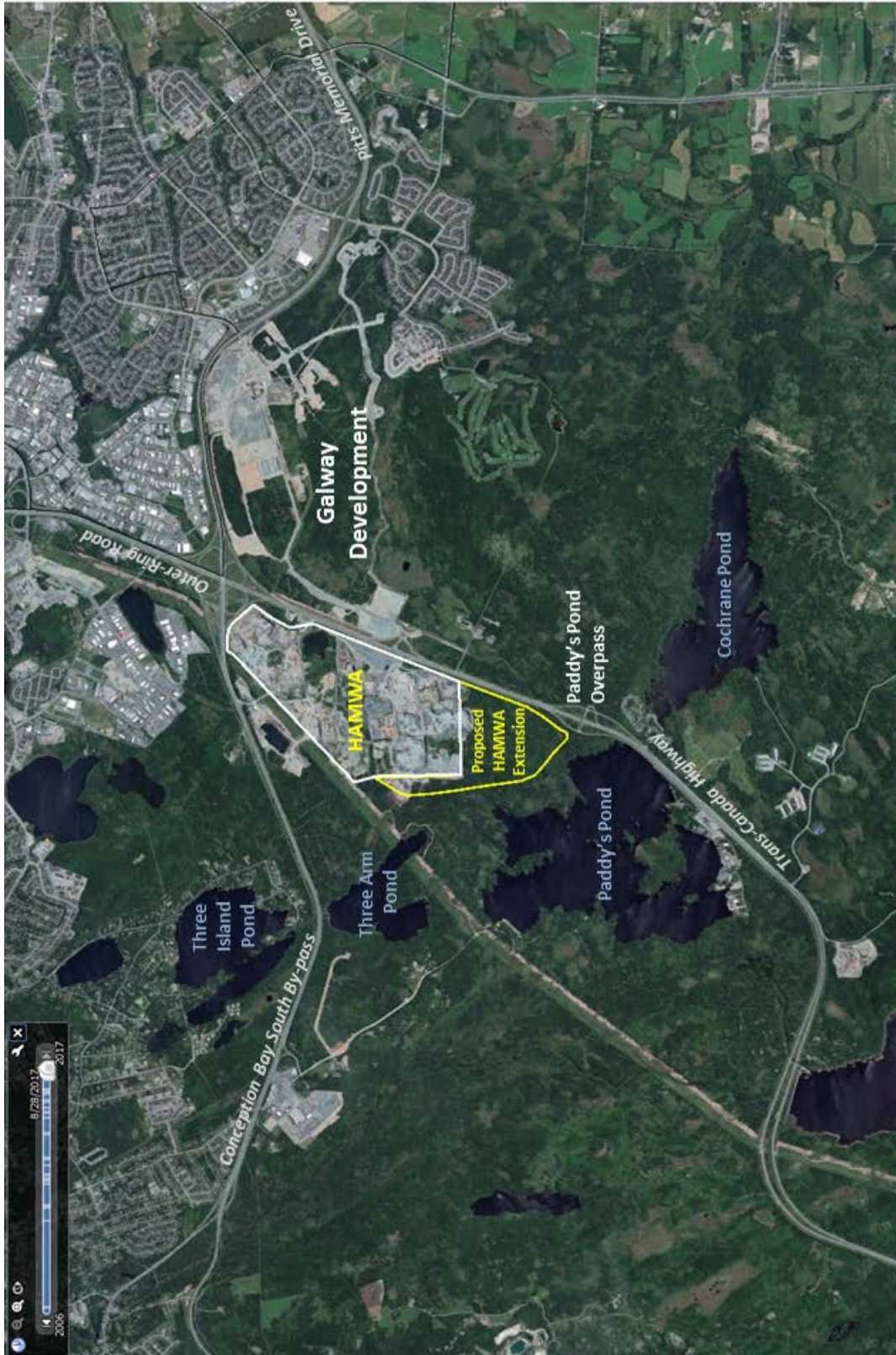


Figure 4: The project is located on the east side of the Trans-Canada Highway, opposite of the new Galway development and north of Paddy's Pond.

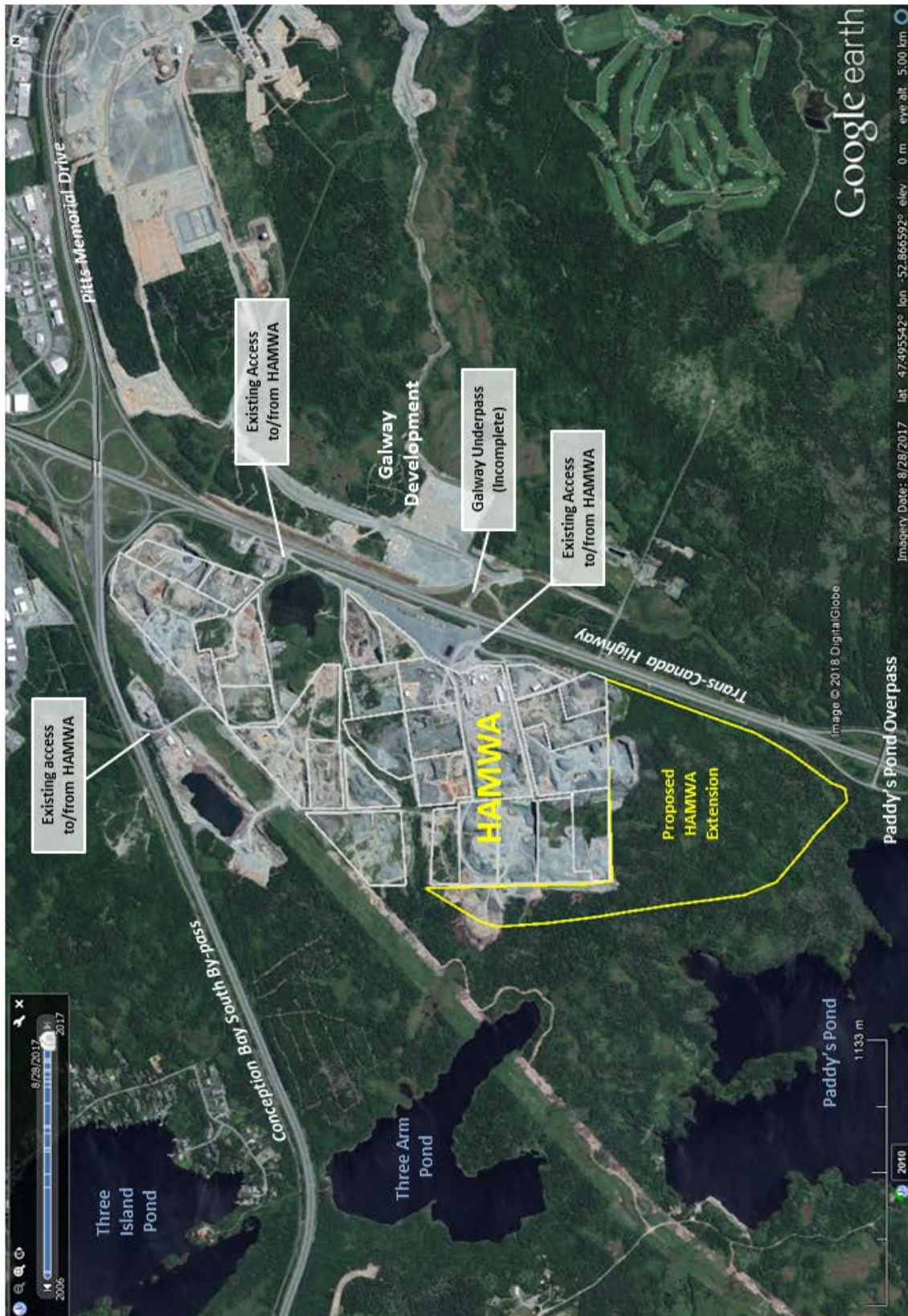


Figure 5: The site is bound to east and west by the Trans-Canada Highway (TCH) and Conception Bay South (CBS) Bypass respectively.

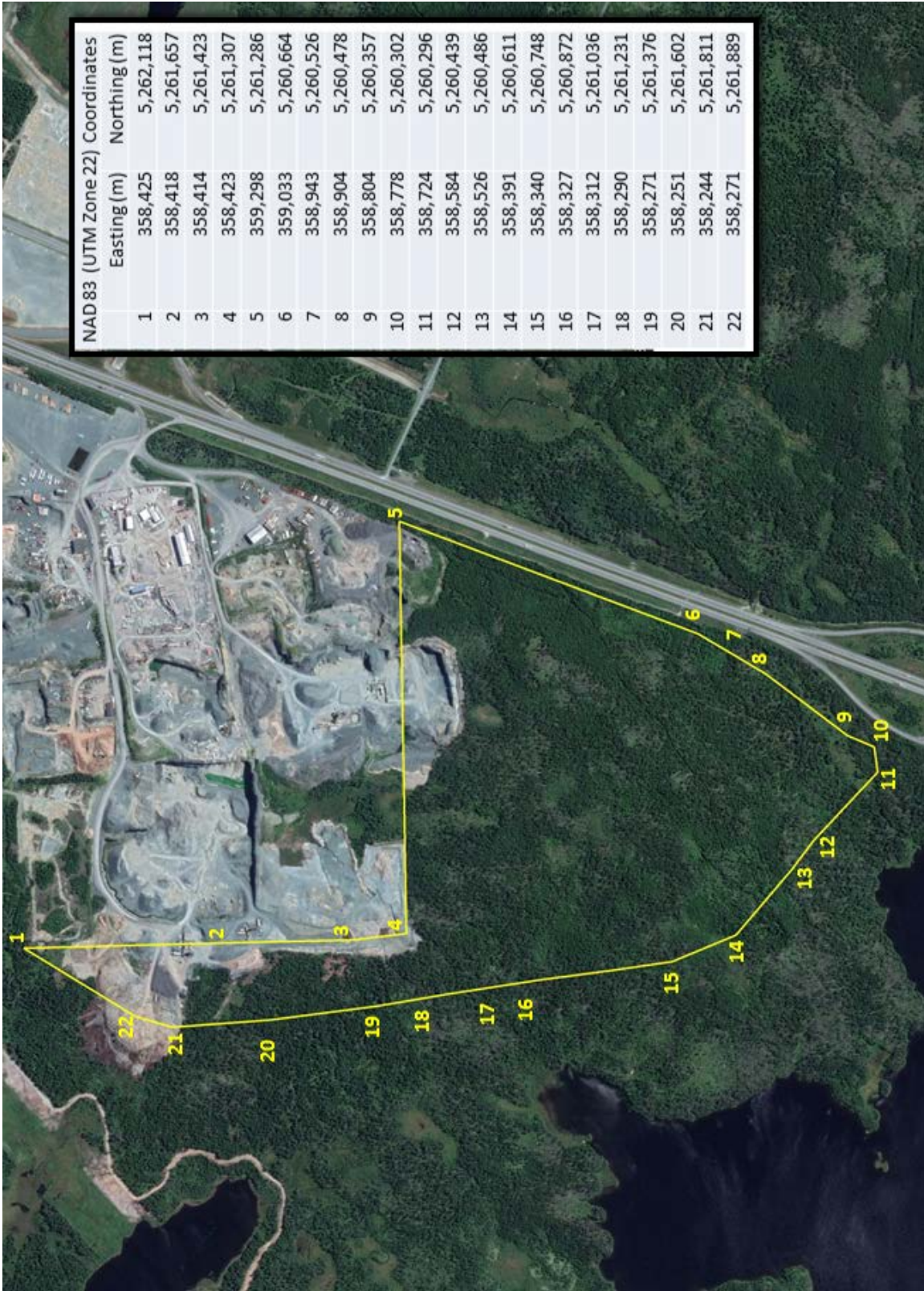


Figure 6: The project area is 78.3 hectares in size and is defined by the UTM (NAD 83, UTM Zone 22) coordinates shown.

Appendix A

Copy of Previous Environmental Assessment Document (2013)

Department of Natural Resources

P.O. Box 8700
St. John's, NL
A1B 4J6
(709) 729-2768

ENVIRONMENTAL ASSESSMENT REGISTRATION DOCUMENT

**Proposed Expansion of the Harbour Arterial Mineral
Workings Area (HAMWA)**

**Prepared by:
Department of Natural Resources
January 25, 2013**

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Appendix 1: Maps and Figures

- Figure 1: Harbour Arterial Mineral Workings Area (HAMWA) showing location of quarry leases and operators.
- Figure 2: Location of the existing HAMWA quarry leases (yellow) and the proposed expansion site (red).
- Figure 3: Location of Arboretum (black) relative to proposed expansion area.
- Figure 4: Active quarry operation, ~1.5 km north of the proposed Gear Pond Aggregate Source area.
- Figure 5: The alternative source for aggregate at Gear Pond (outlined in red) will require a significant lead-time, as a result of multiple land-use issues that will require re-zoning.

1. NAME OF UNDERTAKING:

Harbour Arterial Mineral Area Workings Expansion, St. John's

2. PROPONENT:

Department of Natural Resources
P.O. Box 8700
St. John's, NL
A1B 4J6

Minister:

Hon. Tom Marshall, Q.C.
Department of Natural Resources
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Principal Contact Person for purposes of environmental assessment:

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3. THE UNDERTAKING:

(a) Nature of the undertaking:

Aggregate is a major requirement of most construction projects. Due to its high hydraulic conductivity, aggregate is widely used in drainage applications. It is also a primary component of many composite materials used in construction, such as concrete and asphalt. The proposed project involves the expansion of the largest bedrock aggregate quarry site (Figure 1) within the greater St. John's area to provide aggregate to satisfy growing demands for aggregate for construction purposes. The Harbour Arterial Mineral Workings Area (HAMWA) is the only area in St. John's which is zoned principally for the extraction of aggregate. The volume of material available at the current site will be insufficient to supply aggregate to the greater St. John's area within the next several years at the current rate of extraction. Demand is not expected to slow in the coming years.

(b) Purpose/Rationale/Need for the Undertaking:

Several companies have expressed interest in acquiring rights to rock quarries in the northeast Avalon. Quarry rights confer a strong competitive advantage in the construction business providing a low cost source of crushed stone aggregate, an essential component in all construction activities. The location of any rock quarry is extremely important; most of the costs associated with aggregate relate to transportation of material. A source close to St. John's is desired in order to prevent rapid and colossal cost escalation.

Aggregate sources are relatively scarce in the Northeast Avalon. Adequate material must be identified and is becoming increasingly difficult to find in areas where there are no land-use conflicts. The HAMWA is the only area in St. John's that is zoned principally for the extraction of aggregate. The area was zoned as mineral workings by the City of St. John's in the 1970s and is now divided entirely into about 20 quarry leases with about 16 different operators (Figure 1). As a result, the area is a hodgepodge of individual lots/leases being exploited at variable rates. Some of the larger operators have very little minable material remaining, while other smaller operators have sufficient material to sustain their efforts at the current extraction rate for many years to come (F. Kirby, Manager of Quarry Materials, DNR, 2012, pers. comm.). Due to the differential rates of production, reclamation work will likely be a long, protracted and costly endeavour.

The demand for additional quarry materials is high due, in part, to aggressive housing developments in response to increased demand for new homes driven by large new construction activities, primarily within the resource sector (CHMC, November 5, 2012). Examples of some of the construction activities currently underway in the city include new offices and hotels, expansion of the St. John's International airport, a new long-term care facility in the Pleasantville area, and expansion of the St. John's Convention Centre among others. In September, the provincial government announced an investment of almost \$16.8 million in support of new municipal infrastructure in St. John's (Municipal Affairs press release, September 10, 2012). The funding will support street rehabilitation, public works depot renovations, sidewalk replacement, retaining wall rehabilitation, bridge rehabilitation, a new community centre in Southlands, and non-profit housing. Overall, investment in the St John's area in 2012 is expected to reach \$650 million and the population is expected to see a further 6% growth (Re/Max Housing Market Outlook 2013).

These new projects will all require a source of aggregate and the only area currently zoned for the extraction of aggregate (the HAMWA) has limited material left for exploitation as the larger producers are rapidly exhausting their reserves. Expansion of the HAMWA appears to be the most effective way to address current and impending supply shortages.

4. DESCRIPTION OF THE UNDERTAKING:

a) Geographical Location:

The area considered for expansion extends approximately 800 metres south of the current HAMWA toward Paddy's Pond and tapers from approximately 750 metres wide

to approximately 400 metres wide at the southern limit (Figure 2). The total area is 72 hectares minus the area of the Arboretum (Figure 3), which must be excluded from the proposed HAMWA expansion.

No direct access to the area of expansion is currently available but the area could be accessed by extending existing roads from the current workings. A bypass road has been proposed for the Paddy's Pond area (Figure 3) and, while future access could potentially be gained from this new road, its construction is likely five to ten years away (John Morrissey, Manager of Highway Design & Traffic Engineering, pers. comm., 2013).

The expansion area is located on a hill and will be visible from the TCH and likely from the Foxtrap Access Road as well. Innovative ideas to reduce visibility impact should be sought. In addition, the proposed expansion area lies within the MUN Forest Reserve Area (Paddy's Pond) and the Land Management Division of the Department of Environment and Conservation (DE&C) is currently amending the Crown Land Reserve in the area to allow for quarry activity (Peter Hearn, Manager of Resource Evaluation and Policy Integration, DE&C. pers. comm., 2013). Additionally, re-zoning by the City of St. John's will also be required.

b) Physical Features:

The area is located within the Maritime Barrens Ecoregion and plant species in the area are typical of boreal forest species of this ecoregion. Most of the area is tree-covered, with several boggy areas, some intermittent streams and minor rock outcrops. Paddy's Pond, located south of the proposed expansion, contains several species of fish. The area is home to moose, lynx, hares, ducks and a variety of other bird species and other small animals.

Major physical features of the undertaking will include open pit aggregate operations (Figure 4), laydown areas, garages, crushers and asphalt plants.

c) Construction:

Aggregate operations are usually developed in stages but at a rapid pace. Generally boundary surveys are completed first followed by 1) the submission of an application for a quarry lease complete with development plans and financial assurance, 2) the issuance of a quarry lease, 3) site development (stripping, stockpiling of organics for rehabilitation and development of laydown areas, 4) the development of open pit quarry operations, 5) crushing of material and 6) transportation of the product to market– (crushed stone, cement and/or asphalt.)

During construction, there is potential for noise, site drainage and dust pollution. As well, if blasting is required, fly rock could potentially be hazardous to fisherfolk, float plane operators and other users of the Paddy's Pond area.

d) Operation:

It is estimated that the area could be divided into 2-5 new quarry leases. Each operation will consist of the blasting of rock with subsequent transport of the material using a combination of trucks and front end loaders. Each operation will also have an on-site crusher and may have an asphalt plant.

Potential pollutants during the operation would include site drainage, noise, airborne emissions (dust and fly rock), and possible fuel or oil leaks. Site runoff will be directed to vegetated areas and barriers may be installed (as required) to prevent siltation of water bodies or streams. Any domestic waste generated will be collected and disposed of as per the Waste Material Disposal Act. All equipment will be equipped with appropriate emission controls. All vehicles will follow a designated route and will be properly maintained to minimize noise and exhaust and muffler systems will be inspected regularly to ensure effective operation. Petroleum products will be handled and stored as per Storage and Handling of Gasoline and Associated Products Regulations, under the Environmental Protection Act. The proposed site is located greater than three km from residential areas.

e) Life Expectancy of Operation and Rehabilitation Plan

The proposed area is expected to provide aggregate for the greater St. John's area and much of the northeast Avalon for roughly 50 years. Operation plans and rehabilitation plans will be designed by professional geotechnical engineering consultants and will comply with the Quarry Materials Act and Regulations. Operations will be conducted in a logical, staged sequence to streamline and minimize the cost of ultimate rehabilitation design and implementation. Financial assurance for rehabilitation purposes is required for quarries in Newfoundland and Labrador.

f) Occupations:

It is estimated that each operation will at a minimum employ the following: 2 equipment operators (front end loaders), 6 truck drivers, 1 or 2 crusher operators, 2 asphalt plant operators, 1 heavy duty mechanic, 2 air track drill operators and 1 operations manager.

g) Alternative Site:

The Gear Pond Aggregate Source (Figure 5) area was identified as an area that is removed from current housing developments, is underlain by rocks with good potential for use as aggregate for construction, and is characterized by relatively flat topography and dense trees to keep operations out of sight for maximum aesthetic value.

The Gear Pond Aggregate Source area is located south of the Trans Canada Highway at Paddy's Pond. Access can be gained from the TCH by exiting at Paddy's Pond: cross the

overpass to the east side of the TCH, drive parallel to the highway and turn left onto North Pond Road and head south toward Gear Pond (Figure 2). Note that this road is quite rough and likely not maintained. A four wheel drive pick-up truck is recommended.

The area is now designated for Agricultural use, though there is only one farm in the immediate area. Approval of the Gear Pond Aggregate Source will require agreement for this use by Crown Lands and will require re-zoning by the City of St. John's.

Alternate areas were also evaluated in 2002. These included:

1) Bay Bulls Road across from Bay Bulls Big Pond – rejected due to issues associated with the East Coast Trail 2) Trans Canada Highway – Cochrane Pond area – now rejected due to the pending housing and commercial development and 3) Trans Canada Highway/Kenmount Road – now rejected due to ongoing housing developments in this area.

h) Project Related Documents:

-attached maps showing the location of the Gear Pond Aggregate Source area.

-Municipal Affairs news release dated September 10, 2012 -

<http://www.releases.gov.nl.ca/releases/2012/ma/0910n01.htm>

- Re/Max Housing Market Outlook 2013 -

<http://www.remax.ca/miscellaneous/REMAX%20MEDIA%20REPORTS/OUTLOOK%202013/REMAXHousingMarketOutlookRpt2013.FNL.pdf>

-CMHC News Release dated November 5, 2012 –

<http://www.marketwire.com/press-release/st-johns-housing-market-to-remain-stable-1721482.htm>

5. APPROVAL OF THE UNDERTAKING:

Permits that are required include;

Permits

Quarry Lease

Heavy Equipment Operator License

Certificate of Approval for the Operation of an Asphalt Plant

Fuel Storage Permit

Water Use License

Permit to Operate

Department

Natural Resources

Service NL

Service NL

Service NL

Environment and Conservation

City of St. John's

6. SCHEDULE:

The earliest projected start date would be about Fall 2014. Approval of the Undertaking by the City of St. John's would require re-zoning and this process commonly takes about 18 months. It is hoped that the need for aggregate and paucity of available resources will provide sufficient basis for the necessary reviews to be conducted in support of this project.

7. FUNDING:

The Department's intention is to first reserve out the entire proposed HAMWA Expansion Area from quarry activity as per Regulation 5 (1) of the Quarry Materials Regulations. Under this Regulation, the minister may determine areas which will not be available for the issuance of quarry permits or exploration licences. The Department would then publish a Request for Proposals (RFP). Proponents will be required to submit a detailed proposal outlining timing and nature of construction and operations, details of contracts with identified buyers, approximate annual production rates and methods of rehabilitation. Successful proponents would then be granted quarry rights, as per the Quarry Materials Act. Quarry Inspectors from the Department of Natural Resources would conduct periodic site inspections to ensure compliance with the Quarry Materials Act and Regulations. Rehabilitation will occur once an individual quarry has been exhausted of usable material.

8. SUBMISSION

Respectfully submitted:

Date

Signature of Chief Executive Officer

Appendix 1: Maps and Figures

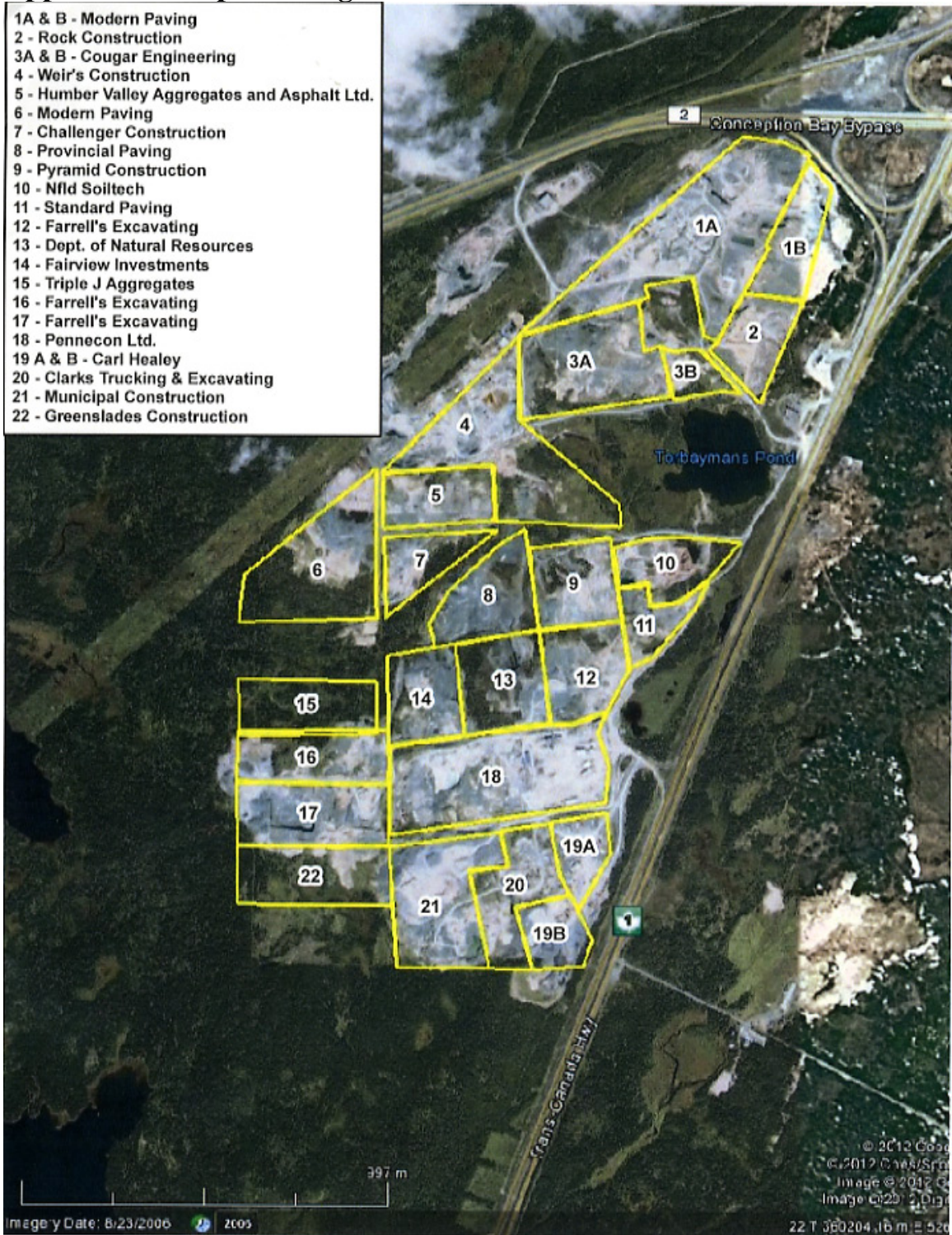


Figure 1: Harbour Arterial Mineral Workings Area (HAMWA) showing the location of current quarry leases and their operators.

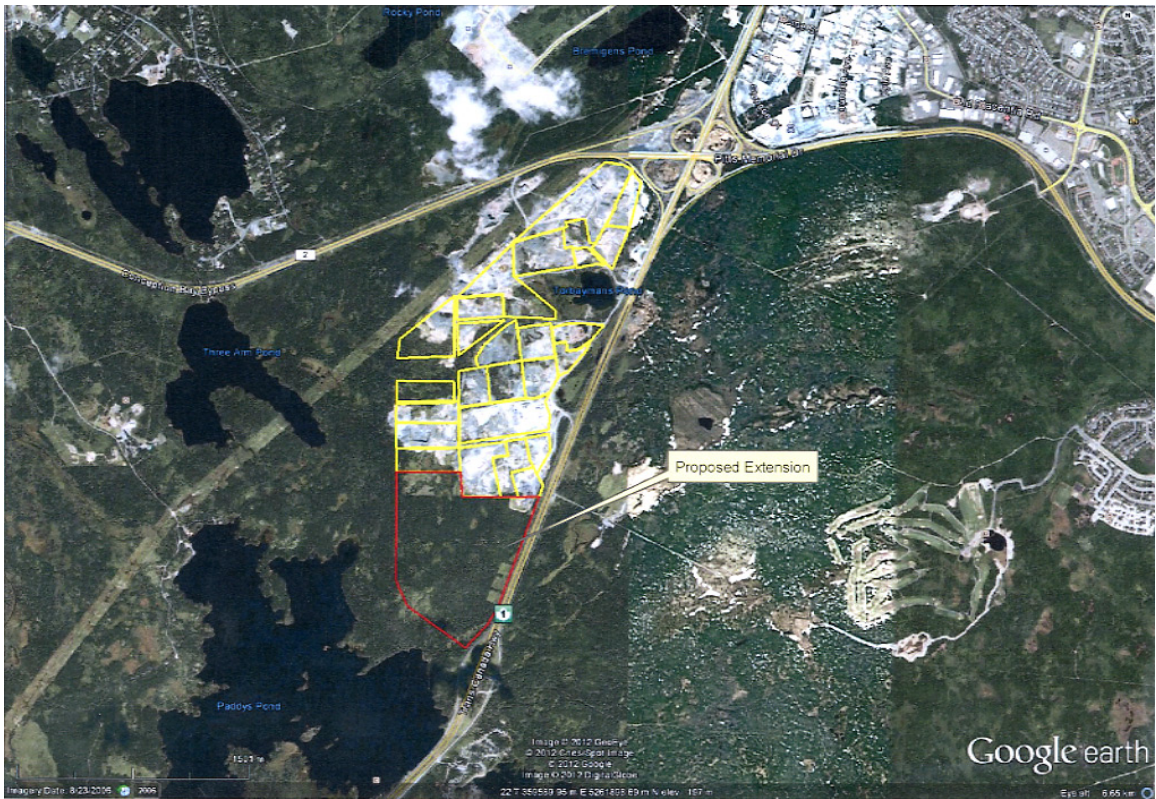


Figure 2: Location of the existing HAMWA quarry leases (yellow) and the proposed expansion site (red).

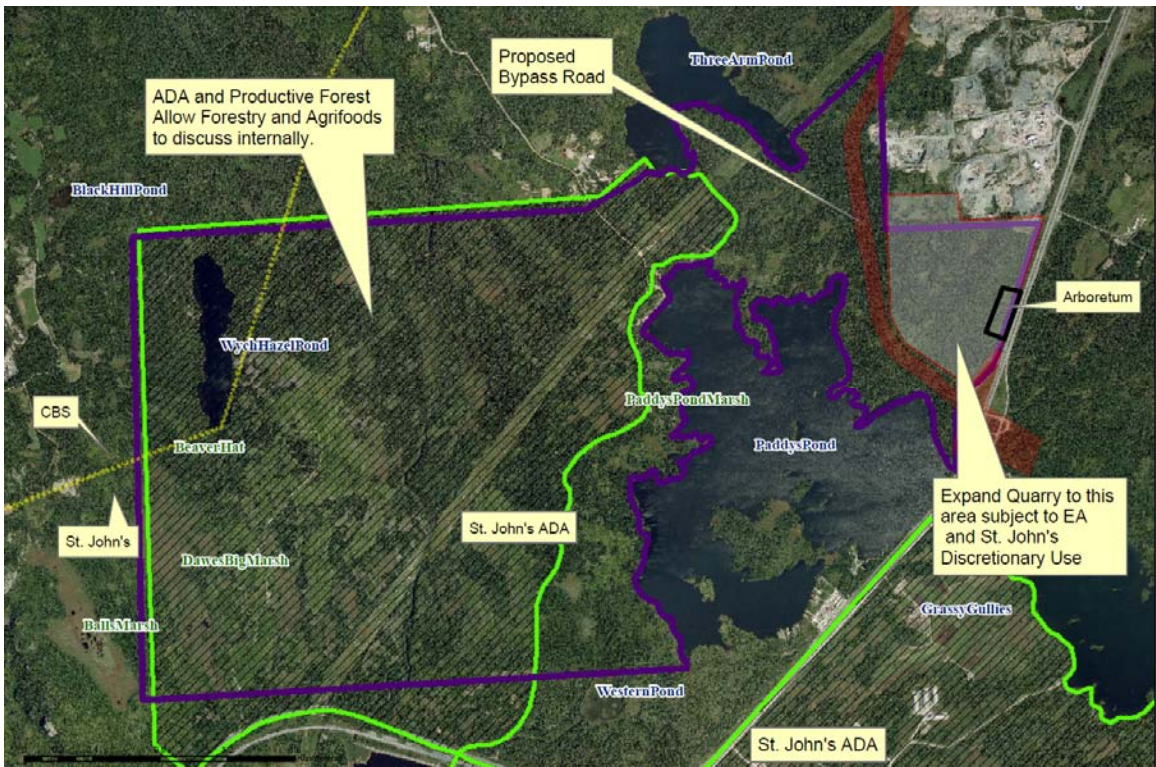


Figure 3: Location of Arboretum (black) relative to proposed expansion area.



Figure 4: Active quarry operation, ~1.5 km north of the proposed Gear Pond alternative aggregate source area.



Figure 5: The alternative source for aggregate at Gear Pond (outlined in red) will require a significant lead-time, as a result of multiple land-use issues that will require re-zoning.

Appendix B

Exploration Approval for Test-Pitting Program

October 25, 2017

E170300

Gerald Kennedy
Department of Natural Resources
Mineral Lands Division
PO Box 8700
St. John's, NL
A1B 4J6

Dear Mr. Kennedy:

**Exploration Approval (50 Test
Pits) for Mineral Lands
Division, Department of
Natural Resources on the
MUN Woodlot Property, NTS
1N/07, Part B of MUN
Woodlot:**

Your proposed exploration program submitted has been reviewed and approved.
The following conditions apply:

1. This approval may be cancelled or suspended by the Minister if the Proponent fails to comply with any condition in this approval or as a result of a failure to comply with any provincial law or regulation. Upon cancellation or suspension of this approval the Proponent shall immediately cease all exploration activities.
2. The Proponent shall comply with any other Provincial and Federal act or regulation, and obtain all permits that may be required in connection with the exploration activity.
3. The Proponent shall notify the Mineral Lands Division of any significant changes to the approved exploration plan, and shall not proceed with exploration work, preparatory work or site access that deviates substantially from the approved exploration plan or deviates from the approved exploration plan in a manner which may significantly impact the environment without first receiving written authorization from the Mineral Lands Division.
4. The Proponent shall provide the Mineral Lands Division with:
 - a) a brief notice immediately before beginning the work;
 - b) a brief update of the status of the exploration program when it is completed.Notices and updates should be sent to exploration_approval@gov.nl.ca

5. At any time the Mineral Lands Division may issue a request for information regarding completed, ongoing or planned exploration and the Proponent agrees to abide by all such requests without undue delay. The information requested may include but is not limited to: the location of exploration sites (including access trails), site preparation methods, the status of rehabilitation and cleanup, and photographic documentation of site conditions.
6. If exploration work is to take place private lands the proponent shall obtain prior written permission and forward copies to the Mineral Lands Division.
7. Exploration work, including traditional prospecting, shall not be carried out on ground for which the mineral rights are held by another party unless permitted by an agreement registered with the Mineral Claims Recorder's office or unless written permission from the other party has been forwarded to the Mineral Lands Division. The Department's Geoscience Atlas is a current map of mineral rights held in the province. The Geoscience Atlas is located at: <http://gis.geosurv.gov.nl.ca/>
8. The Proponent shall ensure that all waste materials are placed in suitable refuse containers without undue delay and removed to a waste disposal site approved by Service NL to accept the type(s) of waste being disposed of. Service NL Government Service Centres are listed at: <http://www.servicenl.gov.nl.ca/department/contact.html#locations>
9. The Proponent is advised that trenches and test pits are required to be rehabilitated before the end of the exploration season in which they are excavated. Rehabilitation requires that the trench be backfilled and the original organic cover (topsoil, ground vegetation, and any trees not used for other purposes) be spread back over the backfilled site. If the original organic cover proves insufficient to completely re-cover the site then an organic substitute material must be used in addition to complete the process, provided that no invasive species are introduced. Acceptable substitute materials are straw, hay, trees having been cut in other parts of the exploration project area, or ground vegetation produced by hydroseeding. If the Proponent wishes to keep one or more test pits open beyond the expiry date of the approval then application must be made to the Mineral Lands Division, a security deposit posted, and approval issued by the department.
10. The Proponent is advised that exploration sites (including drill sites, trenches, test pits, and sections of access trail) associated with ground disturbance and located close to open water bodies or watercourses are considered as sites that could cause sedimentation into a nearby water body. The Proponent is required to actively ensure that any sedimentation generated from the site does not enter the water body or watercourse. Some combination of erosion prevention and sedimentation control shall be used to meet this requirement.
11. The Proponent's use of existing forest access roads must not impede access for other resource users, and any forest access roads used must be left in the condition found prior to the Proponent's exploration activity with any rehabilitation required to be undertaken as a result of the exploration activity to be at the expense of Proponent.
12. Petroleum product spills into or near a water body and petroleum product spills greater than 70 litres (or of an uncertain volume) on land must be reported without delay to Service NL by calling the Environmental Emergency 24-hour line at 772-2083 or 1-800-563-9089. In order to ensure that a quick and effective response to a spill event is possible, spill response equipment and absorbent materials should be readily available on-site.

13. The Proponent shall wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water. Water depths should not submerge axle or differential vents.
14. The Environmental Assessment Division has reviewed the proposed activities and advises that registration for Environmental Assessment is not required with the understanding that the Proponent will not be constructing permanent access trails and that surface disturbance of the route will be limited to tree clearing (i.e. no cut and fill construction). Should this not be the case, the Proponent shall contact the Mineral Lands Division as soon as possible for review of any proposed changes.
15. If the exploration activity includes stream crossings and/or fording, the Proponent shall contact the Water Resources Management Division to obtain a Permit to Alter a Water Body.
16. The Proponent shall comply with the Forestry Act and regulations. The Proponent is advised to contact the nearest office of the Forest Services Branch to obtain the following permits as required:
 - a. a cutting permit before the start of the exploration program if trees have to be cut for access to exploration sites. Please note that it may take up to two weeks to receive this permit;
 - b. an operating permit if operations are to take place on forest land during the forest fire season (May-September);
17. Forestry has advised that they approve the activities on the basis that their operator harvests the exploration lines.
18. This mineral exploration program is located within the City of St. John's Municipal Planning Area (MPA). You are advised to contact the City to inform them of your exploration program and to determine if any municipal permits are required.
19. The Fisheries Act requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. This applies to work being conducted in or near waterbodies that support fish that are part of or that support a commercial, recreational or Aboriginal fishery. If this exploration work is to take place in or near a waterbody, please complete the Department of Fisheries and Oceans (DFO) Self-Assessment at: <http://www.dfo-mpo.gtgc.ca/pnw-ppe/index-eng.html>.
20. As per Section 38 (5) of the Fisheries Act, every person has a duty to notify DFO of an occurrence that results in serious harm to fish, or the deposit of a deleterious substance in water frequented by fish. Should such an occurrence take place, the Proponent shall contact DFO at 709-772-4140 or FPP-NL@dfo-mpo.gc.ca.
21. A permit is required from the Government Service Centre in accordance with the Urban and Rural Planning Act for the construction of an access road in a protected area, or for any access onto a protected road.
22. Please be advised on the provisions of the *Historic Resources Act*, protecting archaeological sites, artifacts and significant fossils, and procedures to be followed in the event that either are found:

- a. A person who discovers an archaeological object or significant fossil in, on or forming part of the land within the province shall report the discovery forthwith to the Minister (responsible for the *Historic Resources Act*) stating the nature of the object, the location where it was discovered and the date of discovery;
- b. No person other than one to whom a permit has been issued under this Act, who discovers an archaeological object or significant fossil shall move, destroy, damage, deface, obliterate, alter, add to, mark or in any other way interfere with, remove or cause to be removed from the province that object or fossil;
- c. The property in all archaeological objects or significant fossils found in, on or taken from the land within the province, whether or not these objects or fossils are in possession of the Crown is vested in the Crown;

Should any archaeological remains be encountered, such as stone, bone or iron tools, concentrations of bone, charcoal or burned rock, fireplaces, house pits and/or foundations, activity in the area of the find must cease immediately and contact should be made with the Provincial Archaeologist in St. John's (709-729-2462) as soon as possible.

Copies of the *Historic Resources Act* and information on archaeology in the province may be obtained from the Provincial Archaeology Office upon request.

23. The Wildlife Division advises applicant to operate under established regulations and guidelines with respect to wildlife and its habitat to minimize additional impacts (in particular Sections 106 a) of the *Wild Life Regulations* under the *Wild Life Act* (O.C. 96-809): www.env.gov.nl.ca/env/wildlife/index.html).

Pursuant to Section 106 of the *Wild Life Regulations*:

- a. A person shall not operate an aircraft, motor vehicle, vessel, snow machine or all-terrain vehicle in a manner that will harass any wildlife;
- b. You are advised that helicopter supported exploration programs must be conducted in a manner that does not disturb, harass or harm any animal life that you encounter. This can easily be accomplished by avoiding concentrations of wildlife by rescheduling the planned activities for another day.
- c. Under no circumstances should nesting raptors be approached, not even for a "harmless" look. The startle effect that helicopters have on nesting raptors can be detrimental and therefore either a 600 m horizontal buffer from cliff faces or an altitude of 300 m must be observed.

The Wildlife Division strongly recommends that a minimum 30 m naturally vegetated buffer be maintained along all waterbodies and wetlands to protect sensitive riparian and aquatic species, and their habitat.

Habitat disturbance impacts wildlife (birds, small mammals, plants etc) negatively and should be kept to a minimum. To help reduce any negative impacts on any species, the Wildlife Division recommends that any necessary vegetation clearing or excessive noise be undertaken outside of the nesting, breeding and brood rearing period (May to mid-July), when disturbance would be most critical.

Where vegetation clearing is not avoidable and a nest is found:

- The nest and neighbouring vegetation should be left undisturbed until nesting is completed; and
- Construction activities be minimized in the immediate area until nesting is complete

This approval is due to expire on October 25, 2018.

If you have any questions concerning this approval, please contact the undersigned at 729-6408 or heatherrafuse@gov.nl.ca.

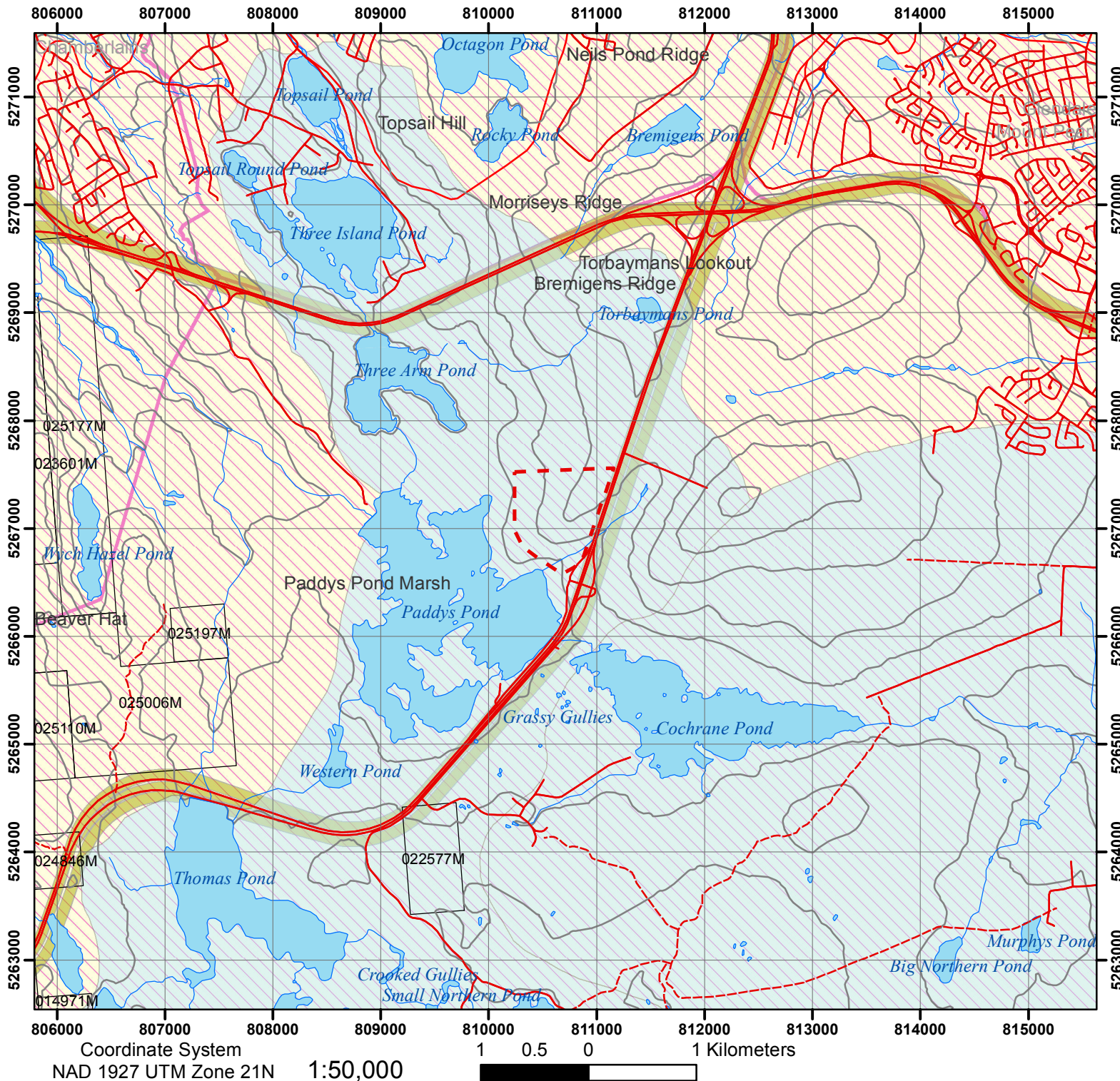
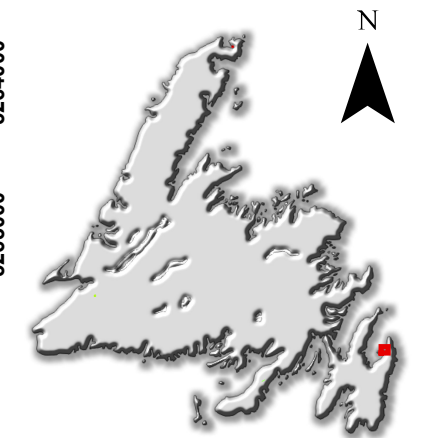
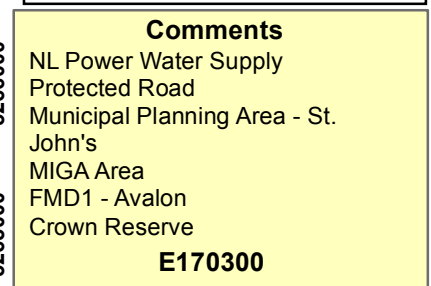
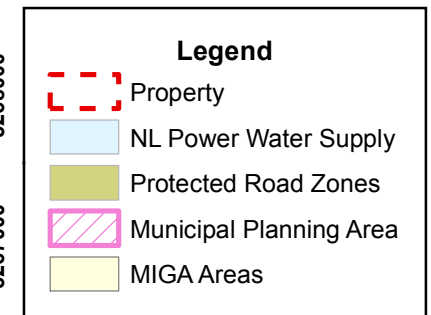
Regards,

A handwritten signature in blue ink that reads "Heather Rafuse". The signature is written in a cursive style with a large initial 'H'.

**Heather Rafuse,
Exploration Approvals Geologist**

c: Justin Lake, Mineral Rights
Martha Drake, Historic Resources
Jason Glode, Forestry Service
Brent Keeping, Environmental Assessment Division
Robert Locke, Service NL
Damien Morrissey, Crown Lands
City of St. John's

Exploration Approval (50 Test
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Division, Department of
Natural Resources on the
MUN Woodlot Property, NTS
1N/07, Part B of MUN
Woodlot



Appendix C

Commercial Cutting Permit for Exploration Program

COMMERCIAL CUTTING PERMIT 2017

Permit Number :17-01-02021

Eastern	01	F - Eastern Shore Conc. Bay	F-4C Paddy's Pond	2017/11/10
Region	District	Zone	W.C.	Date Issued

Under and by virtue of The Forestry Act , Permission is hereby granted to:

Name:	Gerald Kennedy	Phone:	(709) 729-6782
Address:	Dept. of Natural Resources, Mineral Lands Division P.o. Box 8700 St. John's NL A1B 4J6	Driver's Licence #:	K740709015

To cut timber to the conditions and restrictions as stated below:

Total Volume to be harvested:	softwood	50m ³
	hardwood	0m ³

Stumpage Rates:

None Specified

Location where timber is to be cut:	Paddy's Pond Harvest Block
Location where timber must be piled for scaling:	Same

Standard Conditions:

- When the tree is felled, the permit holder must utilize all portions of the tree to a top diameter of 8cm with a stump height not to exceed 15cm unless specified under special conditions.
- No cutting is permitted within 100 meters from the center line of any highway unless specified under special conditions.
- The permit holder will ensure that they safeguard and protect the environment during all cutting and removal of timber.
- Any full or partial load of timber carried upon a highway, must be accompanied with a completed load slip pertaining to that timber.
- No cutting of timber is permitted during Forest Fire Season without a valid operating permit.
- No cutting of white pine or red pine is permitted, dead or alive.
- Timber cut under this permit shall not be removed from the scaling location stated above until scaled by a certified scaler, or unless permission has been received from the Forestry Official issuing the permit.
- All harvesting equipment must be equipped with a 4.5kg extinguisher at all times during the year.

Special Condition: Permit for clearing trails for test pits as per exploration approval # E170300
Timber on site may be pushed aside for future salvage

This permit is effective starting: **2017/11/10** and expires **2017/12/31**

Fee for the issuance of this permit is: **\$50.00**

Payment Method: **Cash**



FORESTRY OFFICIAL