



## **NON-TECHNICAL SUMMARY**

### **1 Project Name**

Geotechnical and Environmental Baseline Studies – Iqaluit Port Development.

### **2 Researcher's Name and Affiliation**

Advisian (contact name: Karina Andrus; email: Karina.Andrus@advisian.com) on behalf of the Government of Nunavut (contact name: Justin McDonell; email: jmcdonell@gov.nu.ca).

### **3 Project Location**

Koojesse Inlet, Iqaluit, Qikiqtaaluk Region.

### **4 Timeframe**

Summer 2016 to Summer 2017.

### **5 Description of Studies**

The studies will be performed for the Government of Nunavut in two locations in Iqaluit. One location is near the municipal wharf. The other location is in the proposed deep water port area and quarry.

### **6 Purpose**

Geotechnical and environmental baseline studies are required to support the design of upgrades proposed for the municipal wharf, and a new deep water port.

### **7 Goals and Objectives**

These studies will be used to gather data to support the design of upgrades proposed for the municipal wharf and the new deep water port, preparation of an Environmental Assessment (EA), as per the *Nunavut Land Claims Agreement*, and post-EA permitting.



## 8 Method of Transportation

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Environmental studies will be performed primarily on foot and in a boat. Geotechnical baseline studies will take place using a drill rig. The study team will stay in Iqaluit and will travel daily to the project site by truck.

## 9 Permanent/Temporary Structures to be Erected

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Permanent or temporary structures will not be erected as a result of these studies. Equipment used to perform these studies will be removed once the studies are complete.

## 10 Environmental Management Plans

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Environmental management plans will be implemented to eliminate or minimize potential impacts to the environment.

## 11 Study Methods

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### 11.1 Geotechnical

Water and/or mud rotary drilling, and diamond drilling techniques will be used to gather geotechnical data. Air rotary drilling may also be required. Hand-held drilling equipment and hand augers will also be used for sampling.

### 11.2 Environmental

#### 11.2.1 Water and Sediment Quality Sampling

Water and sediment quality sampling will be performed to establish existing conditions at the project site. Sediment will be extracted and placed into laboratory jars. Two sampling events will occur in summer (post-ice melt) and fall (pre-freeze). Water will be collected in laboratory-supplied bottles. A water quality logger will be deployed at each sampling location to help determine changes in the water column over time.

#### 11.2.2 Fish and Fish Habitat

A description of the benthic invertebrate community at the potential Disposal at Sea (DAS) sites is recommended in order to characterize the organisms that would be buried during sediment disposal. A towed video will be used to identify the presence, type, and value of fish habitat in the project area. Benthic invertebrate communities will be sampled using a grab sampler. Samples will be retrieved and sieved through a mesh using filtered sea water. The remaining invertebrates will be preserved and shipped to a laboratory for identification.



## 11.2.3 Oceanography

Collection of surface current data is required to characterize surface current patterns at the Project site. This data will also be used to calibrate the dredge dispersion model. Surface current speed and direction data will be collected using surface drogues. The drogues will be deployed in multiple locations near the Project site and DAS site during a flood tide and an ebb tide. The position of each drogue will be recorded using a data logger fixed to the mast of the drogue.

## 11.2.4 Migratory and Marine Birds

Biologists will walk the shoreline of the project site, scanning the coastal near shore and off shore areas to confirm species.

## 11.2.5 Terrestrial Vegetation and Rare Plants

An ecosystem mapping and rare plant survey will be conducted using the meander search approach typically followed for reconnaissance surveys in complex terrain. This involves walking 'randomly' throughout the study area noting each new species until no new species are observed.

## 11.2.6 Terrestrial Landforms, Soil, and Permafrost

Studies for soil, geotechnical conditions, and geochemistry will be performed. Geochemical studies will quantify the acid rock drainage and metal leaching potential of the proposed quarry.

# 12 Data

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Data will support the design of upgrades proposed for the municipal wharf and the new deep water port, preparation of an EA, and post-EA permitting.

# 13 Reporting

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Data from this study and other related studies will be included in reports to be submitted to applicable regulatory agencies and other stakeholders.