

CITY OF IQALUIT



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NORTH 40 GRAVEL PIT SOIL EXTRACTION MANUAL

REVISED – MAY 20, 2005

Nunavut Water
Board

MAY 24 2005

Public Registry

Emergency Contact Numbers

City of Iqaluit Dispatch – 867-979-5680

Spill 24 Hour Report Line – 867-920-8130



1. General

The City of Iqaluit has utilized the North 40 site as a source of aggregate material. Prior to the City of Iqaluit's operation of the North 40 site as an aggregate source it was operated by the Government of the North West Territories as a gravel source. Several contractors and the City of Iqaluit currently extract and process aggregate material at the North 40 site.

The United States Military, the Canadian Government and the City of Iqaluit historically used areas of the North 40 site as a metal waste dump. The main areas of the site that were utilized as a dumpsite are generally well defined; however, the presence of metal debris is not limited within these areas.

The City of Iqaluit intends to continue using the North 40 site as an aggregate source until the available material is depleted or an alternate site is developed.

During the 2004 construction season government agencies expressed their concern for the potential of contaminated material for the North 40 aggregate operation being used for construction in the City of Iqaluit. Following Inspectors' Directions from the Department of Indian and Northern Affairs a testing protocol was prepared which allowed continued extraction and processing of aggregate for the 2004 construction season.

The purpose of this Operations Manual is to formalize the procedures required for contractors and the City to continue extracting material from the North 40 site while ensuring the health and safety of the residents of Iqaluit.

2. Objective of Procedure Manual

The objectives of this Procedures Manual are to:

1. Formalize the Aggregate Extraction Application process and define the information required as part of the application;
2. Define the process for extracting material from the North 40 Quarry;
3. Define the required sampling, testing and reporting protocol required as part of the material extraction process;

3. Operations Manual Overview

The Procedures Manual is divided into the following sections:

1. Aggregate Extraction Permit
2. Extraction Procedures
3. Penalties



4. Water Permits

4. Aggregate Extraction Permit

General

Prior to any person, firm or organization extracting aggregate from the North 40 site they shall be required to obtain a Quarry Permit from the City of Iqaluit. Applicants shall be required to complete the permit application included in Appendix A of the Operations Manual and shall be required to provide the information requested and assist the City of Iqaluit with determining the exact locations for aggregate extraction in the North 40 site.

The following outlines the information required as part of the application process.

Section 1 – Applicant's Information

The applicant shall provide the legal name of the applicant, civic address, mailing address (if different for the civic address), contact person, phone number, facsimile number and e-mail address (if available).

Section 2 – Aggregate Extraction Requirements

Under this section the applicant shall identify the proposed quantity of aggregate to be extracted during the permit's life.

Section 3 – Proposed Quarry and Location

The applicant shall identify approximately on the attached plan of the North 40 site, the proposed area for which aggregate will be extracted. The applicant shall also indicate the maximum depth to which extraction will be undertaken. The applicant shall assist the City of Iqaluit with obtaining GPS coordinates for the proposed boundary of this area.

Section 4 – Equipment List

The applicant shall identify the equipment and its proposed location which will be utilized for aggregate extraction and processing.

Section 5 – Testing Protocol

The contractor will indicate the testing protocol intended to be used as part of their extraction process. They shall provide the name of any consultants or testing laboratories to be utilized. The testing protocol shall meet or exceed the protocol detailed in Section 5 of this Manual.

5. Extraction Procedures

No extraction of aggregate material shall occur without an Aggregate Extraction Permit from the City of Iqaluit.

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At no time shall the extraction, processing, haulage, or any other operation allow the deposition of material whether it be debris, silt, or any other material in water which discharges to Carney Creek.

All material extracted, and/or processed in the North 40 Quarry shall be subject to the sampling and testing protocol as set forth in this Procedures Manual, prior to removal from the North 40 Quarry site, in either its natural or process form.

Extraction Restrictions

The following restrictions shall apply to the extraction and processing of aggregate material in the North 40 Quarry.

1. There shall be no extraction of material below the water table without prior approval of the City of Iqaluit.
2. No extraction shall be allowed which results in the introduction of deleterious material into Carey Creek or any other surface drainage body.
3. A soil dam a minimum of 3.0 metres wide shall be required between any operation below the water table and any existing drainage watercourse.
4. Any extraction of material within 5.0 metres of a water course shall require a silt filtration plan.
5. Water discharged from the process of extracting or processing aggregate shall require a silt protection plan to protect any water courses.
6. All silt filtration plans shall be submitted to the City of Iqaluit for approval prior to the start of extraction or processing. The installed silt protection measures shall be inspected and approved by the City of Iqaluit prior to start of extraction or processing.

Sampling Protocol

As part of the Contractor's permit to extract material, they shall be required to undertake a sampling and testing program. The material shall be sampled and tested prior to extraction and processing. The following shall be required to be part of the sampling and testing procedures:

1. The City shall be notified 72 hours prior to the sampling to allow for duplicate samples to be taken by the City.
2. All sampling and testing procedures are to follow the Canadian Council of Ministers of the Environment (CCME) guidelines.
3. Samples shall be collected by persons properly trained in the collection of samples for environmental purposes.
4. All samples shall be tested by a certified laboratory.



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5. Sampling frequency shall be a minimum of one discrete and one composite sample per 1,000 cubic metres of extracted material.
6. All samples shall be tested for petroleum hydrocarbons, heavy metals including mercury, benzene, toluene, ethylbenzene and xylenes (BTEX), PCBs, and asbestos. Samples collected for analysis of heavy metals, PCBs, and asbestos shall be composite samples. Samples collected for petroleum hydrocarbons (F1-F4) and BTEX shall be discrete samples.
7. Results of the analysis shall be compared to the CCME generic residential/parkland criteria.
8. Two copies of the test results including location of extraction, date of extraction, name of sampler and description of material shall be submitted to the City. The City will then forward one copy of the analytical results to the Nunavut Water Board.
9. No material shall be removed from the North 40 Site until the required sample results indicating non-contaminated material have been submitted to the City.
10. If the extraction of granular material is proposed for an area of existing metal debris, an area specific sampling and analytical program shall be developed and submitted to the City for approval.

Composite and Discrete Sampling

The objective of composite sampling is to assure that the sample best represents the volume of material. Discrete samples can be collected from the stockpile, however they may not be representative of the part of the stockpile the sample was collected from. Composite sampling is the preferred method of sampling a stockpile. Composite samples are typically not appropriate for the collection of soil samples to be analyzed for volatile compounds due to the potential for loss of volatile components during mixing.

Composite samples are created by combining several sub-samples from an area of a stockpile. The sub-samples should not be collected from a distance greater than 4 metres in diameter. The sub-samples should be collected from a depth of 0.15 m into the stockpile to prevent sampling finer or coarser material that may have separated during the stockpiling process. The sub-samples should then be combined in a container so that homogenization can be carried out prior to placing the composite sample into the container for submittal to the laboratory. The type of analysis will determine the volume of sample and the type of container required by the laboratory.

Discrete sampling can be carried out as a spot check of quality of a specific area or horizon. These sample locations are chosen solely on judgement and may be useful if it is apparent that a certain area of the stockpile does not appear to be the same as others in the pile. The samples should be collected from a depth of 0.15 m into the stockpile and be placed directly into the container for submittal to the laboratory. The type of analysis will determine the volume of sample and the type of container required by the laboratory.

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Discovery of Waste Material

If waste material is discovered during the extraction of aggregate the following procedures shall be followed.

Bulk and Metal Debris

1. If the bulk or metal debris is discovered during the extraction of process, the debris can be removed and disposed in an approved disposal site.
2. Upon removal of the debris, extraction can proceed.
3. The City is to be notified of the discovery and the disposal location to allow inspection.
4. The City may exercise their right to require additional sampling and testing of extracted material from the area of the discovery.

Identified Contaminated Soil

1. If contaminated soil is identified during the sampling and analytical program, the City shall be notified. The City will then work with the contractor to further delineate the extent of contamination, the means to isolate the area from granular extraction, and the ultimate means of dealing with the contaminated material.

Suspected Contaminated Material

1. If suspected contaminated material is discovered during the extraction of aggregate, the Contractor is to stop extracting material in the immediate vicinity of the discovery and notify the City of Iqaluit.
2. The Contractor may continue to extract material from other areas of the North 40 Site covered by their Aggregate Extraction Permit, not affected by the discovery of the suspected contaminated material.
3. The City may exercise their right to require additional sampling and testing of extracted material from the area of the discovery.

Asbestos Waste Material

1. If the material containing or suspected of containing asbestos is discovered during the extraction of aggregate, the Contractor is to stop extracting material and notify the City of Iqaluit.
2. The Contractor may continue to extract material from other areas covered by their Aggregate Extraction Permit not affected by the discovery of the waste material only upon approval of the City of Iqaluit.
3. The City may exercise their right to require additional sampling and testing of extracted material from the area of the discovery.

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Spills

Should a spill of contaminants occur at the site from encountering buried liquid debris or from other operations the City dispatch shall be immediately notified at 867-979-5680. In addition, procedures included in the City's spill contingency plan, attached, shall be followed.

6. Penalties

Failure to follow the procedures and requirements set forth in this Procedures Manual shall result in the following penalties:

First Offence: A one week suspension of the Aggregate Extraction Permit

Second Offence: Cancellation of the Aggregate Extraction Permit for the remainder of the construction season

7. Water Permits

Any processing of aggregate or any other activity which requires the use of water or produces waste shall be required to receive a Water License from the Nunavut Water Board. The City of Iqaluit's Water License shall not cover private activities within the North 40 Site.

8. Disclaimer

The City of Iqaluit, through the preparation of this manual, issuance of Aggregate Extraction Permits, administration of the extraction of material from the North 40 Site, approval of sampling and testing programs and results, nor the acceptance of aggregate royalties accepts or takes on any responsibility for the presence of or cleanup of any waste material in the North 40 site.

QUARRY PERMIT APPLICATION



Section 1 - Applicant's Information:

Name: _____

Address: _____ Mailing Address: _____

(if Different) _____

Contact Person: _____ Phone Number: _____
Fax Number: _____
e-mail Address: _____

Section 2 - Aggregate Extraction Requirements:

Pit Run Material: _____ m³

Processed Material: _____ m³

Material to be used in secondary Processing: _____ m³

Other: _____ m³

Section 3 - Proposed Quarry Location:

Indicate on the attached figure the proposed location for material extraction. If different material is to be extracted from different areas, indicate each area and the material to be extracted from each area.

Maximum depth of extraction _____ meters

Section 4 - Equipment List (use back of form if required):

Equipment List:	Area of Use:
1) _____	_____
2) _____	_____
3) _____	_____
4) _____	_____
5) _____	_____
6) _____	_____
7) _____	_____

Section 5 - Testing Protocol:

Attach a description of the proposed testing protocol, including the names of the persons responsible for sampling, testing laboratory, and any firms to be involved in the testing process.

