NEW QUARRY DEVELOPMENT IN CHESTERFIELD INLET, NUNAVUT – PRODUCTION OF 15,000 CUBIC METERS OF GRAVEL TO OVERLAY THE AIRSTRIP

NIRB SCREENING PART 2 FORM
PROJECT SPECIFIC INFORMATION REQUIREMENTS (PSIR)

PITS AND QUARRIES

Definition: Where pitting involves the extraction of granular material (ie. sands and gravels) and quarrying involves the removal of consolidated rock (ie. bedrock, frozen soil)

1. SUBMISSIONS

The Proponent must submit all information pertaining to the Project as a whole. The information requirements below are designed for the purpose of environmental assessment and are not limited to the scope of a single permit or license application.

NIRB does not accept references to an ftp site as a submission.

Provide NIRB with 1 (one) electronic copy and 1 (one) hardcopy of the following information in English.

All maps should be legible, electronic, include grids, be of appropriate scale, indicate the scale, include latitude and longitude references, and a north arrow. To the extent possible, avoid hand-drawn demarcations.

Please respond to all requests below, indicated by the number. If the request is not applicable to the project proposal, please indicate this in the response. If the request has been answered in a different section or report, please note the section or report where the response can be found.

All information and submissions must be accurate and signed by the Proponent.

2. PROJECT DESCRIPTION

General

1. Name and location of proposed project.

Crush, blend and haul 15,000 m^3 of granular material in Chesterfield Inlet, Nunavut.

2. Contact information for proponent(s) and other project contacts.

Felipe Salgado, P.Eng.
Surface Maintenance Engineer
Nunavut Airports
PO Box 560
Second Floor, Rockland Building,
Rankin Inlet, Nunavut
X0C 0G0
Tel (867)645-8208
Fax (867)645-8246
fsalgado@gov.nu.ca

3. List of acts, regulations and guidelines that apply to project activities

- Canadian Council of the Ministries of the Environment
- Department of Fisheries and Oceans
- Environment Canada
- Nunavut Water Board

4. List of approvals, permits and licenses required including the authorizing agency, activity to which the authorization applies, and dates.

Prior to starting the crushing project to produce granular material in Chesterfield Inlet, the following permits are required:

Land Use permit – Indian and Northern Affairs Canada
Quarry permit – INAC
Quarry permit – Government of Nunavut – Community & Governmental services
Authorization – Nunavut Impact Review Board
Review – Environment Canada

Project Information

5. History of the site if it has been used in the past.

The selected site is located 15 km South-West of Chesterfield Inlet community center. A road gives a direct access to the selected site. The new quarry has never been used in the past. It was selected because the rock/gravel samples (once crushed and screened) will meet the specifications required to overlay Chesterfield Inlet's airstrip, taxiway and apron. The amount of material needed to overlay the airstrip is 15,000 m^3 of gravel. The new quarry (approximately 100 meters wide by 300 meters long) has never been used in the past.

6. Map of the project site within a regional context indicating the distance to the closest communities.

The attached map shows Chesterfield Inlet, the regional context and the location of the new quarry. The new quarry is identified as Test Pit 2 and Test Pit 3 on the drawing.

7. Map of the project site indicating existing and/or proposed infrastructure, proximity to water bodies and proximity to wildlife and wildlife habitat.

The attached map shows that the new quarry is 15 km S-W of the community center. It is therefore several kilometers away from the closest infrastructure. The location of the new quarry is fairly flat. The closest water body is 2 km from the new quarry. There is an access road passing by the location of the new quarry and leading to another quarry approximately 5 km further South. The municipality of Chesterfield Inlet uses this further located quarry for gravel requirements. The traffic on this access road (trucks and heavy equipment for gravel hauling) and All Terrain Vehicles (for recreational purposes) was noticeable during the field investigation (July 2005). The new quarry area is not a wildlife area because of the presence and activity on the access road.

8. Discuss the project need and purpose.

The Government of Nunavut – Nunavut airports, wants to overlay Chesterfield Inlet's airstrip, apron and taxiway with new gravel. The gravel (15,000 m^3 requirements) must meet territorial specifications. The existing quarry does not meet such specifications. Furthermore, the available volumes are not sufficient for the gravel overlay project. To meet the specifications and volume requirements, another source of gravel is needed. The crushing project is scheduled in 2006 / 2007 whereas the airstrip overlay project is scheduled in 2007 / 2008.

9. Discuss alternatives to the project and alternatives to project components.

There are few alternatives as the local quarry does not meet the required specifications, even after eventual crushing and blending. Several other locations were sampled but none met the specifications or volume requirements. The airstrip must be overlaid in the near future to meet security requirements.

10. Describe **all** activities included in this project.

11.

- Pitting – None required
- Quarrying – The project requires 15,000 m^3 of gravel. The source will originate from the new quarry, identified as Test Pits 2 and 3 on the attached drawing.
- Camp use and/or construction – It is anticipated that the crushing / blending / hauling component of this project will last 2 months: July and August 2006. Since the community of Chesterfield Inlet is 15 km away, there will only be a daily camp. The operation will count approximately 6 staff. Full demobilization is planned at the end of August 2006.
- Overburden removal – The overburden at this location consists of esker residual material. This material will be sent directly to a crusher to produce gravel meeting the size requirements.
- Road use and/or construction (please see NIRB's Winter Road PSIR or All-weather Road PSIR) – The construction work is scheduled for the 2 summer months. An

access road already exists from the community center to the new quarry and beyond.

- Fuel transport and storage – The crushing, screening and hauling project will necessitate large quantities of fuel (approximately 12,000 litres of Diesel fuel to operate the crusher, screener and to haul the gravel to the airstrip). A fuel truck is available from the local cooperative in Chesterfield Inlet. It is anticipated that the successful Contractor will hire the fuel truck for re-fueling purposes. It is unlikely that larger quantities than 200 liters of fuel be store at the work place at any given time.

- Explosives transport and storage – There is no blasting requirements for this project. The gravel samples obtained during the field investigation demonstrated that crushing/screening of existing overburden will produce the required specified gravel. No storage or use of explosives required for this project.

- Chemical transport and storage – The only chemicals needed for this crushing / screening operation is Diesel fuel, hydraulic and mother oil, coolant and lubricants. Storage of these petroleum based products will most likely be based in Chesterfield Inlet (Contractor's shop or cooperative or municipal garage)

- Work within navigable waters – The workplace is located at more than 2 km from any water bodies. The ocean (Hudson Bay) is located 15 km from the workplace.

- Blasting – None required

- Stockpiling – 15,000 cubic meters of gravel will be produced in 2006/2007. The overlay project will start in 2007 and end in 2007 or 2008. The gravel will be stockpiled at two locations as identified on the attached drawing. The stockpile is done on flat ground at a minimum distance of 1 km from the airstrip. The stockpiling slopes will be 2H:1V and the maximum height will not reach 5 meters above ground.

- Crushing – Crushing is required to pulverize rocks, boulders and gravel to the proper specifications. Conventional crushers are Diesel powered, and can produce up to 500 cubic metres per day. Technically speaking, producing 15,000 cubic meters can occur in 30 days.

- Washing – The natural fine content meets the specifications (this new quarry was selected mainly because of the fine content). The fine content must range between 5 and 10% (this figure is low but is required to prevent dust problems once placed on airstrips). Because of the proper amount of fines present in the overburden in the new quarry, washing is not anticipated.

- Other

12. Indicate whether any of the following Department of Fisheries and Oceans (DFO) Operational Statement (OS) activities apply to the project proposal:

    - Bridge Maintenance – No bridge encountered
    - Clear Span Bridge – No clean span bridge encountered

- Culvert Maintenance – Culvert maintenance is done by the municipality of Chesterfield Inlet. However, specifications state that the Contractor is responsible for repairing all and any damages made to the access road and infrastructure.
- Ice Bridge – work done during the summer time.
- Routine Maintenance Dredging – No dredging requirements

Please see DFO's Operational Statements for specific definitions of these activities available from either NIRB's ftp site at XXXX or DFO's ftp site at XXXX

13. If any of the DFO OS apply to the project proposal, does the Proponent agree to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable OS? If yes, please provide a signed statement of confirmation.

14. Provide a schedule for the above activities. Not applicable.

Pits/ Quarries

15. Describe any field investigations and the results of field investigations used in determining new extraction sites. Refer to Annex 1 – technical specifications, Chesterfield Inlet

16. Conceptual design including footprint – The new quarry, as indicated on the attached drawing, is an esker (approximately 100 m wide by 300 meters long and 2.5 meters depth). The Contractor will crush the rocks and gravel to produce the granular material. The overburden will be used. The depth of operation will be driven by permafrost depth. The excavation is unlikely to go below natural average elevations (the eskers is approximately 2-3 meters above average natural ground elevation).

17. Describe the type and volume of material to be extracted – The volume required is 15,000 cubic meters. The type of gravel requirement sis shown in annex 1 – technical specifications.

18. The depth of overburden – The depth of overburden – the only material used fro the project – is approximately 2.5 meters.

19. Describe any existing and potential for thermokarst development and any thermokarst prevention measures – According to the experience of the field investigator, there are no thermokarst development in the vicinity of Chesterfield Inlet.

20. Describe any existing or potential for flooding and any flood control measures – The development of the new quarry will be limited to the removal of the esker overburden. The average natural ground elevation within this area is 2-3 meters below the top of the esker. Excavation will not go below this elevation as the granular material becomes to fine at greater depths. Therefore, quarry flooding will not occur. Flooding control measures will not be necessary. Upon completion of the quarrying work, screener rejects will be graded to match natural surrounding ground elevation.

21. Describe any existing or potential for erosion and any erosion control measures – Erosion will not occur because the maximum depth will not go beyond 2.5 meters in depth (height of the esker with proper gravel and fine content). Final grading will prevent and potential erosion in the future. Note: the quarrying work will be carried fro 2 months. The quarry will then be permanently closed.

22. Describe any existing or potential for slumping and any slump control measures – Based on the above reasoning, slumping will not occur.

23. Describe the moisture content of the ground – Due to the above ground elevation and the nature of eskers, material is naturally drained. The water content is estimated at approximately 20%.

24. Describe any evidence of ice lenses – None observed during the field investigation (early July 2005)

25. If blasting, describe methods employed – No blasting requirements

26. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results – The Contractor is required to produce gravel from the quarried material. Geotechnical results indicate that the quarry material contains the right proportion of fine material. However, the proportion greater than 16 mm is too high. The Contractor will therefore have to crush the quarried material to produce material between 2 mm and 16 mm. This operation will not produce acid rock drainage. ARD often occurs when small sized fraction is mechanically produced, i.e. smaller than 1mm. Nevertheless, the Contractor is required to install silt fences down gradient of any quarrying and crushing activity. Details on the silt fence requirements are presented in Annex 1.

27. Discuss safety measures for the workforce and the public – Bidding Contractors will be required to provide a complete and comprehensive health and safety plan. The requirements include protection of workers, population, wildlife and the environment. The plan must describe means of controlling dust during crushing, screening and hauling operations. The health and safety plan will be analyzed from bidders upon reception for content and appropriateness.

Stockpiles

28. The location and conceptual design of stockpile(s). The stockpiles are shown on the attached drawing. The conceptual design is indicated in Annex 1 – Technical specifications

29. Describe the types of material to be stockpiled. (ie. granular material, overburden) – The stockpiled material will have the specifications described in Annex 1- Technical specifications.

30. Anticipated volumes of types of material to be stockpiled: 15,000 cubic meters

31. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results. As described in section 25, ARD and metal leaching is not anticipated. The use of silt fences will nevertheless be enforced down gradient of stockpiles to intercept silt sized particles from entering drainage paths and water bodies.

Transport

32. Describe how the site will be accessed and how supplies will be brought to site. The access road is shown on the attached drawing. The gravel will be hauled on the main access road to the 2 stockpile locations using conventional 10 or 12 wheelers. The Contractor may decide to use articulated trucks. A total of 15,000 cubic meters will be hauled on the main access road.

Camp Site

33. A list of existing and proposed camp structures and infrastructure. The staff required to operate the crusher, screener and heavy equipment will count 6 people. It is unlikely that the Contractor decides to set up a permanent camp. The anticipated camp structures and infrastructures are described as follows:

- 1 portable toilet
- 1 prospector tent (or equivalent) to be used as a rest area, dining area, changing room and first aid
- All staff will be lodged in Chesterfield Inlet. Staff will be picked up in the morning and driven back to Chesterfield Inlet at the end of the work shift.
- No other infrastructure requirement

34. Describe the type of camp: It is anticipated that the camp will be mobile and temporary (July 1 to August 31, 2006)
    a. Mobile
    b. Temporary
    c. Seasonal
    d. Permanent
    e. Other

35. Maximum number of people expected on site: it is anticipated that 6 workers will occupy the temporary camp at the quarry

36. Describe the source of power for the camp: the day camp will not require heat or lighting. A small gasoline driven generator may be required for occasional energy requirements (coffee machines, fridge, etc)

Equipment

37. A list of equipment indicating uses and approximate dimensions. The Contractor is requested to crush 15,000 cubic meters of gravel, haul and stockpile the gravel near the airport. The following equipment will be required:

- 1 small excavator, i.e Caterpillar 317 or 320 or equivalent
- 1 pay loader, i.e. Caterpillar IT 24 or IT 28 or equivalent
- 1 crusher, Diesel powered, minimum of 400 ton per day capacity
- 1 screener, Diesel powered, equivalent capacity
- 3 ten or twelve wheelers, or 2 articulated 6x6 trucks
- Possibly 1 water truck to control dust
- 1 service pickup / may be equipped with a water tank for dust control

- 1 fuel truck – most likely subcontracted / 1 visit per day
- 1 or 2 All terrain Vehicle

38. If possible, provide digital photos of equipment. The Contractor has not been selected yet. This requirement cannot be delivered at this time.

Water

39. Location of water source(s) (show on map). Water sources are shown on the attached drawing.

40. The estimated rate of water consumption (L/d). A priori, fresh water will not be required for the crushing and screening operations. The only fresh water use anticipated is for duct control on dry days. In such case, a water truck may be used to control dust at the quarry where crushing and screening will occur, and to control dust on access roads. A typical water truck uses 10,000 liters per application with 2 or 3 applications per day, on a as required basis

41. Describe water intakes. Describe methods for the prevention of fish entrapment. Water use will be occasional, on dry days. The Contractor will be requested to present a satisfactory means of preventing fish entrapment during intake. Past experience indicates that water intake is done near lake edges where shallow depths are observed. Typically, fish are seldom prevent along lake edges, in shallow areas.

42. If applicable, discuss how surface water and underground water will be managed. Underground water will not be encountered as the maximum quarry depth will be 2.5 – 3 meters. Surface water, on raining days, will find its way to a low point. As described in section 25, silt fences will be to filter fine and coarse grained particles flowing along with surface water.

Waste (Grey water, Sewage, Other)

43. Describe the characteristics, quantities, treatment, storage, transport, and disposal methods for the following:

    - Sewage – it is anticipated that the Contractor will use portable “chemical” toilet. The toilets will be emptied and cleaned on an as required basis. The operation will only occur during the day. A subcontractor will empty the toilets in the municipal sewage treatment area

    - Camp grey water – There will not be camp grey water besides the toilet sewage.

    - Combustible solid waste – The Contractor is requested to carry all waste on a daily basis and a complete cleanup at the end of operations.

    - Non-combustible solid waste – similar to the previous bullet

    - Bulky items/ scrap metal – None anticipated

    - Waste oil/ hazardous waste – Heavy equipment service will be done in Chesterfield Inlet, in a garage. Oil spills will be immediately addressed and managed.

- Empty barrels/ fuel drums – Equipment will be fueled with a fuel truck. Barrels, if present, will be removed at the end of the work. It is anticipated that the Contractor may bring 1 hydraulic oil barrel for heavy equipment requirements. The Contractor is requested to produce a spill contingency plan.

- Other – Rock rejects will be present at the end of the quarrying operations. The Contractor is requested to level the rock rejects according to natural ground elevation. Unused boulders and rocks will be placed on the quarry floor, and will be covered with rock rejects prior to final grading.

Fuel

44. The types, quantities (number of containers, type of containers and capacity of containers), method of storage, method of containment, location of storage (show on map) and uses. As described in section 10, it is anticipated that the fuel requirements will reach 12,000 liters. The fuel will be Diesel. Gasoline may be required but in much lesser amounts (1,000 litres maximum). The re-fueling operations will most likely be done with a fuel truck on a daily basis. Fuel truck can have a capacity of 10,000 liters or less. It is anticipated that no fuel be stored at the quarry and work place.

45. Describe secondary containment measures including the type of material or system used (for storage of fuel over 4000L). No fuel storage anticipated.

46. Describe the method of fuel transfer and the method of refueling. It is anticipated that all re-fueling operations will be done by a fuel truck parked next to the equipment needed refueling. The refueling will be done using a conventional hose and pump.

Chemicals and Hazardous Materials (i.e. oils, greases, drill mud, antifreeze, calcium or sodium chloride salt, lead acid batteries, cleaners)

47. The types, quantities (number of containers, the type of container and capacity of containers), method of storage, method of containment, location of storage (show on map), and uses. Heavy equipment may require the addition of hydraulic fluid, motor oil or antifreeze. These minor operations will be done at the work place. The service vehicle will carry small quantities of hydraulic fluids and oils. It will carry a strict minimum quantity. If maintenance is required, heavy equipment will be mobilized to Chesterfield Inlet. Calcium or sodium chloride will unlikely be used for dust control. It is anticipated that water will be used for dust control. Potable toilets typically use an ammonia / water solution for antiseptic and degradation purposes. This solution will be disposed of at the sewage treatment facility of Chesterfield Inlet. Finally, the day camp operations are unlikely to require or use any chemicals, cleaners, etc.

48. Describe any secondary containment measures including the type of material or system used – None required

49. Describe the method of chemical transfer – No chemical transfer required.

Explosives

50. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), method of storage – No blasting requirement for this project.

Public Involvement/ Traditional Knowledge

51. Describe the level of public involvement, a summary of public involvement measures, a summary of concerns expressed, and methods of addressing the concerns. The production of 15,000 cubic meters of gravel at the new quarry is a short project. From a technical standpoint, the production could be reached within 30 business days. The Contractor will be given all of summer 2006 to produce the gravel and can demobilize in 2007. The municipality of Chesterfield Inlet counts several Contractors that will provide a proposal for this project. Even if specific equipment may not be available in Chesterfield Inlet (i.e. crusher), all the remaining equipment is readily available in Chesterfield Inlet. From an economical standpoint, resources and equipment will mostly come from Chesterfield Inlet. Issues such as depth of permafrost and climatic changes may become an issue for the Contractor. Traditional knowledge may be requires from elders and experienced earthwork workers. This traditional knowledge will be transferred on an as required basis.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT

1. Describe the existing environment, including physical, biological and socioeconomic aspects. For details see Appendix A.

Note: The detailed provided in the description of the existing environment should be appropriate for the type of project proposal and its scope.

4. IDENTIFICATION OF IMPACTS

1. Please complete the attached Table 1 – Identification of Environmental Impacts, taking into consideration the components in Appendix A. Identify impacts in Table 1 as either positive (P), negative and mitigable (M), negative and non- mitigable (N), or unknown (U).
2. Discuss the impacts identified in the above table.
3. Discuss potential socioeconomic impacts
4. Discuss potential for transboundary effects related to the project.

There is no attached Table 1. The potential impacts and mitigations are listed as follows:

Noise produced from heavy equipment operation and trucking. The activities are 15 km from Chesterfield Inlet and is very unlikely to create a nuisance to the population. No wildlife observed during the field investigation**. "N"**

Dust produced from heavy equipment operation and trucking. The Contractor is requested to control duct on dry and windy days. It is anticipated that water will be used to control dust on an as required basis. **"M"**

Accidental spills produced from heavy equipment operation and trucking. The Contractor is requested to produce a spill response plan prior to starting work. Workers will be made aware of ways to prevent spills (awareness speeches) **"M"**

Surface water contamination as a result of quarrying activities. The Contractor is requested to install and maintain silt fences to intercept fine particles from entering water bodies. The new quarry is located several kilometers from large water bodies (lakes, rivers, sea) **"M"**

The socioeconomical impacts will be positive: local hiring (qualified workers and laborers) and subcontracts in Chesterfield Inlet are anticipated.

5. MITIGATION OF IMPACTS

1. Describe measures to mitigate impacts to the physical, biological and socioeconomic environment as identified in Section 4. Measures are described in section 4.

6. CUMULATIVE EFFECTS

1. Discuss how the effects of this project interact with the effects of relevant past, present and reasonably foreseeable projects in a regional context. The overall cumulative effects are good: a good source of granular material was found, its development will provide a good source of gravel to overlay the airstrip, taxiway and apron, its development will provide employment in Chesterfield Inlet.

7. SUPPORTING DOCUMENTS

1. Please provide the following supporting documents:
   - Preliminary Abandonment and Decommissioning Plan
   - Existing site photos with descriptions
   - Emergency Response and Spill Contingency Plan
   - Monitoring Plan

The Abandonment and Decommissioning specifications and site photos are shown in appendix 1. Emergency response and spill contingency plans are requested. The Contractor will have to produce such plans with the submittals scheduled in 2006.

The is no monitoring plan requirements. The new quarry will start in July 2006 and will close in August 2006.

APPENDIX A

Physical Environment at the work place, 15 kilometers South West of Chesterfield Inlet

- Proximity to designated environmental areas, including parks, heritage sites, sensitive areas and other protected areas. There is no known parks or heritage site in the vicinity of the new quarry. The sewage disposal area, as indicated on the drawing , is several kilometers from the work place. Fresh water source for Chesterfield Inlet is located 10 km from the new quarry. The toundra is a sensitive area. The Contractor is requested to minimize traffic on the toundra.

- Eskers and other unique landscapes (e.g. sandhills, marshes, wetlands, floodplains). The new quarry is an actual esker. The surrounding environment, as identified on the photographs shown in Appendix 1 is flat with occasional small rolling hills.

- Evidence of ground, slope or rock instability, seismicity. Slope instability was noticed during the field investigation, where a road washout occurred. This washout was repaired by the municipality of Chesterfield Inlet. Otherwise, the land is flat. There is no reason to suspect rock instability or seismicity.

- Evidence of thermokarsts – None observed in this area.

- Evidence of ice lenses – None notice during the field investigation (heavy equipment was used to obtain soil samples at various depths.

- Surface and bedrock geology – Surface bedrock observed appears to be dense garnet schist an granite gneiss.

- Topography – Flat, with occasional eskers

- Permafrost (e.g. stability, depth, thickness, continuity, taliks). The active zone (surface thawed layer) in Chesterfield Inlet at the end of July is approximately 2-3 meters. Chesterfield Inlet is located is a continuous permafrost area.

- Sediment and soil quality – Complete geotechnical testing was done on 5 soil samples from the new quarry area and surroundings. The soil consists of gravel, a mixture of coarse and medium sand and 5% fines (silt size). This material is obviously non plastic. Sediment samples were not obtained.

- Hydrology/ limnology (e.g. watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, flood zones). Limited information of these issues is known at this time. These description are outside of the scope of work. However, the following point can be taken into consideration:
  Any water bodies are at least 400 meters from the new quarry (small water pond). Rivers, lakes and the sea are several kilometers from the new quarry. The surface is flat but surface water finds it way to low points where it ponds until it evaporates in the summer time. GPS measurements indicate that the new quarry is 15 meters above sea level. Risk of flooding is minimal.

Groundwater movement is most likely slow as there is no visual surface gradient. The nature of the overburden is a mixture of fine, medium and coarse grained particles. This is an indication of a soil having a low hydraulic conductivity.

- Tidal processes and bathymetry in the project area – This section does not apply. The new quarry is 15 km from salt water.

- Water quality and quantity – The water quality in the area was not tested but appears excellent.

- Air quality – Appears excellent. There is no reason to believe that air quality should not be excellent.

- Climate conditions and predicted future climate trends – The arctic is undergoing apparent raise in average temperature in the long term. This will have no incidence of this short term quarry / gravel crushing project.

- Noise levels – The heavy equipment activity will occur 15 km from Chesterfield Inlet. Noise level is of low concern but will be typical of such heavy equipment.

- Other physical Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review – No community consultation planned in Chesterfield Inlet fro this project. There is no VEC anticipated.

Biological Environment

- Vegetation – Typical of lower Arctic / Hudson Bay hydrographic basin. The observed vegetation consists of lichens and small occasional flowers. No vegetation higher than 10 cm observed.

- Wildlife, including habitat and migration patterns – No wildlife observed during the field investigation. The Contractor is requested to respect wildlife at all times during the work.

- Birds, including habitat and migration patterns – No birds observed during the field investigation. The Contractor is requested to respect wildlife at all times during the work.

- Species of concern as identified by federal or territorial agencies –Typical of lower Arctic / Hudson Bay hydrographic basin area.

- Aquatic (freshwater and marine) species, including habitat and migration/spawning patterns – Not applicable for this project.

- Other biological Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review – None at this point.

Socioeconomic Environment

- Archaeological and culturally significant sites (e.g. pingos, soap stone quarries) in the project and adjacent areas – None observed or present according to residents interviewed on this matter.

- Land and resource use in the area, including subsistence harvesting, tourism, trapping and guiding operations – The area surrounding the new quarry area is used as a gravel extraction activity. There is no subsistence harvesting or tourism activity within or surrounding the new quarry area.

- Local and regional traffic patterns.

- Other Valued Socioeconomic Components (VSEC) as determined through community consultation and/or literature review – None foreseen.