

# Giant Mine Lease Area Land/Water Use Plan

## City of Yellowknife



Revision 4 – June 2006

## EXECUTIVE SUMMARY

The Giant Mine Town Site (lease area) is located 4 km north of Yellowknife, NT, on the Ingraham Trail. The lease area was formerly used to house employees of the Giant Mine gold mine which ceased operations in 2004<sup>1</sup>. The City of Yellowknife (City) recently obtained the opportunity, through a 30-year lease option on the site, to develop a portion of the community. The purpose of this study, therefore, was to prepare a plan that would lead to the development of an acceptable and suitable land and water use plan for the Giant Mine lease area.

In preparation of the plan for the Giant Mine lease area, many considerations were taken into account. As a former industrial site (gold mine, mill and tailings area) the Giant Mine site has a number of existing contamination issues. One of the greatest challenges on the site is 237,000 tons of arsenic trioxide dust stored in underground chambers. These chamber areas are not immediately proximate to the lease area. Soil and water (ground water and surface water) contamination on-site arsenic dust, hydrocarbons and other industrial wastes is being managed by the Government of Canada together with the Government of the Northwest Territories (GNWT). These parties have set out the expected remediation standards for the Giant Mine site and the lease area. Subsequent to the remedial activities of these two senior levels of government, additional efforts maybe required dependant on the land use selected by the City.

The second consideration for this site was that there is high interest in developing the Giant Mine lease area. This interest is based on its important role in Yellowknife's history as well as its intrinsic value. This part of Yellowknife boasts scenic views of Back Bay as well as the fish-bearing Baker Creek that passes through the lease area. In addition to the rich mining history, this site forms part of the asserted Akaitcho traditional territory which contributes to the uniqueness of the site.

The third consideration was the existing buildings, structures and infrastructure on the site. Over the years, many temporary and permanent structures have been built and rebuilt in the Giant Mine Lease area. These structures have included houses, bunkhouses, a "rec hall", post office and curling rink, to name a few. Currently, a number of houses remain on the site but many of them are in disrepair. Four (4) houses are recommended to receive heritage designation. The remainder of the structures will have to be removed in order to develop the site.

The fourth consideration was the current policy framework in the City of Yellowknife. The City's General Plan provides planning direction for all development within the city. The General Plan is complemented by a Zoning By-law which provides land use control tools and minimum development requirements. The regulatory planning documents, together with the Integrated Parks, Trails and Open Space Development Study; the Waterfront Management Plan; and the Residential Growth Study provide direction for the development of the goals, objectives and policies for the Giant Mine Town Site.

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<sup>1</sup> Ryan Silke, pers comm.

The study process was comprised of three (3) main phases: Facts, Values and Policy & Action. Within these components, background research was undertaken; goals, issues, expectations and priorities were developed; and, finally, objectives and policies were stated.

Consultation played a large role in this project residents contributed ideas, thoughts and concerns for the development of the Giant Mine lease area. Key themes that came out of consultation included the promotion of tourism, local heritage and waterfront access. Residents also discussed environmental, political and infrastructure issues.

A vision for the Giant Mine lease area was developed based on the research. Within this vision, four (4) main goals were developed and identified:

1. Residential and Commercial Development
2. Community Accessibility for Recreation & Tourism
3. Heritage
4. Natural Preservation & Environment

Within each of these goals, specific objectives, policies and proposals were created to provide direction for ensuring the vision is met and carried out in future years.

Overall, the land use planning analysis undertaken in this project has been a success due to the input of many residents and stakeholders. This report is not intended to be a remediation plan, but rather to serve as a vision for the community's objectives for the future of the lease area; the plan will provide direction for the future development of the Giant Mine Town Site.

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## **INTRODUCTION**

### **1 THE SUBJECT STUDY AREA**

The subject study area, commonly referred to as the Giant Mine Town Site, is located 4 km north of Yellowknife, NT, on the Ingraham Trail. The subject study area includes the entire lease area and is defined by lease 17889T and identified in **Appendix D**. Throughout this report, the subject study area will be referred to as the Giant Mine Lease area, or “lease area”.

The lease area was formerly used to house employees of the Giant Mine gold mine. This part of Yellowknife boasts scenic views of Back Bay as well as the fish-bearing Baker Creek that passes through the lease area. The terrain of the area consists of rock outcrops and low lying areas. As an added unique design feature, the built-up portion of the community incorporated the re-existing natural features into community design and subdivision site planning.

On October 1, 2000, the Miramar Giant Mine Limited (Miramar Mining Corporation) Lease was partially surrendered with the intention of entering into a new lease for the purpose of assignment to the City of Yellowknife, or “the City”. The expiry date for this lease is September 30, 2030. Lease 17889T provides authorization for Miramar to assign its interests to the City while at the same time maintaining existing buildings related to mining operations. The lease states that new development is restricted to recreation only. However, since the lease area is within the municipal boundary of the City, designated land uses are controlled by Council.

Through the lease, the City assumes responsibility for future uses and maintenance of the lands, however, the City is not responsible for infrastructure and improvements related to its mining operations which are located within lease 17889T.

The City has an opportunity, through the 30 year lease on the site, to develop a portion of the community that is surrounded by water, has a magnificent view, heritage and a legacy of stories that helped to form our community. In addition to the rich mining history, this site forms part of the asserted Akaitcho traditional territory which contributes to the uniqueness of the site.

## 1.1 The Mine

Giant Mine is an underground and open pit gold mine located 5 km north of Yellowknife. From 1948 to 1999 the mine operated at various times as an underground and open-pit mine and mill. From 1999 to 2004<sup>2</sup> it operated an underground mine with the ore trucked to Miramar Con's Mill. The mine had several owners over its history. In April 1999, the mine was owned by Royal Oak Mines. When Royal Oak went into receivership the mine property became the responsibility of the Department of Indian and Northern Affairs Canada (INAC). In December 1999, the Government of Canada sold the mining rights to the Miramar Mining Corporation. The responsibility for the clean-up of the underground mine workings was retained by the Government of Canada. One of the main environmental problems identified with this site is the 237,000 tons of arsenic trioxide dust stored in underground chambers.

### Giant Mine Overview

- Study area will be referred to as "lease area" throughout this report
- City has a 30 year lease, until 2030
- Miramar maintains buildings related to mining operations
- New development is restricted to recreation as per lease agreement
- The lease area is within the asserted Akaitcho traditional territory

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<sup>2</sup>Ryan Silke, pers comm.



## 2 PURPOSE AND SCOPE OF STUDY

The purpose of this study is to prepare a plan that will lead to the development of an acceptable and suitable land and water use plan for the Giant Mine Lease area. A key objective of this plan is to promote and enhance safe public access to the area and waterfront.

A land use planning analysis, such as this, can provide useful direction to the Giant Mine Working Group with respect to remediation and structure preservation (or demolition). While this report is not

intended to be a remediation plan, it will serve to provide a vision of the community objectives regarding the future use of the Giant Mine Lease area.

### Study Scope and Purpose

- Prepare a suitable land and water use plan for the Giant Mine Lease Area
- Promote/enhance safe public access to the area and waterfront
- Provide a vision for the site based on community objectives

### **3 METHODOLOGY**

The study process was comprised of three main phases, described below:

#### **3.1 Fact Component**

The fact component describes the existing conditions indicating the challenges and opportunities of the subject area. Sections 4 to 14 of the report, along with the mapping component of this report are focused on the fact description of the site, including:

##### **3.1.1 Analysis of City of Yellowknife By-laws, Plans and Relevant Legislation**

- General Plan By-law No.4315
- Zoning By-law No. 4024
- Integrated Parks, Trail and Open Space Development Study
- Waterfront Management Plan
- Residential Growth Study

##### **3.1.2 Analysis of all Physical Attributes**

- Location of structures
- Geology and Soils
- Ground Water and Surface Water Resources
- Landscape features
- Fish and Wildlife

#### **3.2 Values Component**

The values component, located in Section 15 and 16 of this report, outlines the goals, issues, expectations and priorities identified by stakeholders and residents during the consultation phase of the study. In particular, residents expressed a vision for the Giant Mine Lease area and Waterfront area that reflects, advocates and commits to:

- Developing and maintaining a positive relationship with the Yellowknives Dene
- Acknowledging that there is a 30 year lease on this site which expires in 2030
- Maintaining and supporting the NWT Mining Museum and Interpretive Centre
- Allowing for commercial activities that support tourism

- Designating the Giant Mine Waterfront and Lease area as a UNESCO Geo-Park
- Working with the City of Yellowknife Heritage Committee to designate certain buildings as heritage sites.
- Creating a publicly accessible waterfront park that allows for year-round activities
- Supporting the implementation of the Waterfront Management Plan
- Supporting the implementation of the Parks, Trails and Open Space Study
- Maintaining innovative development that respects the natural contours of the land and the views of the water.
- Maintaining this site as relatively protected from the built-up urban center of Yellowknife
- Protecting Baker Creek
- Acknowledging and protecting the geological history on this site
- Avoiding further anthropogenic sources of arsenic
- Ensuring protection of human health
- Planning for seasonal boat moorage
- Promoting waterfront activities for the public
- Allowing for the continued use of the site for recreational sailing
- Developing a break wall

### Residents Value

- A positive relationship with Yellowknives Dene
- Supporting a NWT mining museum and interpretive centre
- Allow for commercial activities that support tourism
- Acknowledging the geological significance of the site
- Public access to the waterfront
- Protecting the site's land and water environmental features

### 3.3 Policy & Action Component

The Giant Mine lease area and Waterfront strategic direction is expressed through objectives and policies structured around key issues and opportunities as identified through the Fact and Values components. Objectives are specific and achievable community ideals. The policy component guides planning, problem solving, development management and acts as a mechanism to set priorities.

These policies reflect the priority issues, needs and potential of the community. The policies, when considered together, represent a commitment to follow a course of action in order to achieve the desired community ideal.

The action component identifies the specific proposals and initiatives to give practical effect to implementing the policies component. These actions should ensure appropriate and sustainable development for the community. The Giant Mine lease area and Waterfront Plan policies and actions are presented in Sections 17-22.

## **FACT COMPONENT**

### **4 ASSUMPTIONS**

There were a series of assumptions associated with this project. Listed below are the main assumptions that guided our study:

1. Unless otherwise stated, this report assumes that what is true for the entire Giant Mine site in terms of scientific research and land use analysis is true for the lease area . The two areas are only separated by a lease, not by environmental differences. The one caveat to this assumption is the impact that the underground storage of the arsenic tri-oxide dust will have on the site. The underground vaults exist on the Giant Mine site, but are distant to the lease area and will not impact the lease area development.
2. We trust that the sources referred to in this report are accurate; which include primary and secondary resources.
3. Notwithstanding the fact that there is there is the larger issue of contamination on the Giant Mine site, the City is proceeding with a visioning exercise. This project allows members of the public and stakeholders the opportunity to present their ideas of what land uses would be most appropriate for this site.

**Project Assumptions**

  - All sources referred in this report are accurate
  - The site will be remediated for safe human use
  - The city will have title to the lease area after 2030
  - Any site remediation that is required beyond industrial standards will be undertaken by the developer
4. We assume that the site has been or will be remediated to allow for safe human use.
5. Community planning for the lease area after 2030 is based on the assumption that the City will have title to the lease area.
6. As per Section 6.1(b) of the "Cooperation Agreement Respecting the Giant Mine Remediation Project" from March 15, 2005 between Canada and the GNWT, the Giant Mine site will be remediated to industrial standards. This indicates that is specific areas, remediation required beyond industrial standards will maybe required prior to development of select areas of the site.

## 5 ANALYSIS OF CITY OF YELLOWKNIFE BY-LAWS, PLANS AND RELEVANT LEGISLATION

Creating consistent and rational policy recommendations are integral in the development of an orderly and well-planned community. With this approach in mind, the following sections provide a review of major City policy documents that will guide the development of the community for the next twenty (20) years. All recommendations created for the Giant Mine lease area have been created in consideration of approved City policies and by-laws. Where amendments are required for lawful implementation of recommendations, these have been highlighted.

A summary chart is provided below as a snapshot of City-approved legislation (by-laws, acts and policies) which currently guide development and redevelopment.

**Table 5.1: “What’s Allowed?”**

**A snapshot of City of Yellowknife direction for subject area**

| <p>✘ = NOT PERMITTED<br/> ✓ = PERMITTED</p>   | Residential | Commercial | Institutional & Community Use | Industrial | Open Space & Recreation |
|---|-------------|------------|-------------------------------|------------|-------------------------|
| General Plan                                  | ✘           | ✘          | ✘                             | ✘          | ✓                       |
| Zoning By-law                                 | ✘           | ✘          | ✓                             | ✘          | ✓                       |
| Integrated Parks, Trails and Open Space Study | ✘           | ✘          | ✘                             | ✘          | ✓                       |
| Waterfront Management Plan                    | ✘           | ✘          | ✘                             | ✘          | ✓                       |
| Residential Growth Study                      | ✘           | ✘          | ✘                             | ✘          | ✓                       |
| Town Site/Water Lot Head Lease No. 17889T     | ✘           | ✘          | ✘                             | ✘          | ✓                       |

The above table provides a clear indication that within the existing documents that guide City of Yellowknife development, open space and recreation uses are permitted in addition to institutional and community uses as per the zoning by-law. Any development proposals that do not conform to the General Plan or Zoning By-law must be approved through Council. An amendment to the Zoning By-law and possibly the General Plan By-law, may be required.

## 5.1 General Plan 2004

During the 2004 – 2009 planning period, it is projected that an additional 740 residential units will be required to meet the increase in population. The General Plan report proposed that infill should make up approximately 25% (185 units) of the development. The remaining 555 units will be new development. The Niven Lake and DeMelt Crescent areas<sup>3</sup>, as well as infill opportunities, were identified in the Residential Growth Study as meeting the needs for the 2004-2009 planning period and beyond.

The Tin Can Hill and Yellowknife Bay South areas are identified as the next phase of residential development and can be developed within a cost range similar to that of Niven Lake. There are some lead-in costs associated with access to the existing infrastructure network (either off School Draw/54th Street area or from the Taylor Road/Forrest Drive/Con area).

As of February 2006, the Department of Municipal and Community Affairs (MACA) approved the transfer of 601 hectares of land to the City of Yellowknife of which 148 hectares was previously under lease. A portion of Tin Can Hill is included in this transfer.

## 5.2 Zoning By-law

The Giant Mine lease area is currently zoned as Growth Management. In addition to the zoning by-law which provides a 50 meter setback on all lakes to protect environmentally sensitive areas and allow for public use, the by-law also has specific regulations for the Growth Management Zone.

The 50 metres setback provision in the zoning by-law specifically states:

### **Section 1.4(6)**

The shore of any water-body (including islands) is deemed NP-Nature Preservation and the out limit of this NP – Nature Preservation zone is deemed to extend on land 50 metres from the shore and/or natural boundary of the said water-body. The shore and islands may be zoned otherwise but the boundaries of any designation other than NP – Nature Preservation must be delineated on the zoning map, along with the appropriate zoning symbol.

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<sup>3</sup> The DeMelt Crescent area has reached capacity as of 2006.

The General purpose of a Growth Management Zone is to protect undeveloped areas from premature subdivision and development. In doing so, land use is controlled and regulated such that future development may proceed in an orderly and well planned manner while maintaining the intent of the General Plan and/or an adopted Development Scheme.

Currently, the permitted uses on this site are:

- Parks and recreation;
- public or quasi-public use;
- public utility uses and structures;
- temporary activities subject to Section 3.9 of the zoning by-law; and
- accessory structures and uses.

Conditionally permitted uses are:

- Commercial recreation;
- diamond facility;
- industrial uses subject to Section 3.7 of the zoning by-law;
- kennels;
- natural resource extraction subject to Section 3.7 of the zoning by-law;
- marina;
- transportation facility;
- planned development subject to Section 3.1 (9) of the zoning by-law;
- detached dwellings;
- home based business;
- bulk fuel storage; and
- similar uses.

In addition to the permitted uses, the Giant Mine site is subject to the condition that any development on the site legally existing or legally approved prior to the passing of this by-law is deemed to be an approved conditionally permitted use for that site.

The following Special Provisions are detailed in the Zoning By-law for Growth Management Zones:

#### 1. Site Development

Notwithstanding Section 4.1.(3) of the zoning by-law, the site plan, the relationship between buildings, structures and open space, the architectural treatment of buildings,



the provision of landscaping, the parking layout and emergency vehicle access shall be subject to approval by the Development Officer.

2. Site Location

The location of this site to be developed within this zone and the relationship of the site to the surrounding environs shall be subject to approval by the Planning Administrator and the said location shall comply with the General Plan and an applicable development scheme for the area.

3. The development, subdivision, or lease of any site adjacent to a water body shall not be within 50 metres of the shore or the natural boundary of the said water body but this requirement may be varied by the Development Officer provided that:

- The Development Officer approves a site plan showing public access to the shore or natural boundary of the said water body and
- This access is protected by way of a reserve dedication pursuant to the Planning Act or an easement registered on the property.

4. Trees shall not be cut, felled, or removed without prior approval of the Development Officer.

### **5.3 Integrated Parks, Trails and Open Space Development Study**

This study and the recommendations within it were approved by Council on September 12, 2005.

As a general policy direction stemming from this report, the importance of water bodies would be recognized and users will be provided with the appropriate level of access to this resource through the implementation of the Waterfront Management Plan. This plan provides for: improved and enhanced vehicular, pedestrian and water use access; established water and land use development and occupancy policies; the control of the water surface and shoreline of Great Slave Lake; and identifies nature and heritage preservation areas.

In this Integrated Parks, Trails and Open Space Development Study, the Back Bay/Giant Mine area was recognized as one of seven ecologically sensitive areas in Yellowknife. The rocky shoreline along Back Bay is reportedly used frequently by numerous California gulls and herring gulls for roosting and staging, especially during the spring season. This area is expected to

represent an important feeding ground for various water birds feeding on fresh-water fish species. Baker Creek flows into Back Bay near the pier and boat launch.

Baker Creek is known to provide spawning habitat for local sport fish including northern pike, burbot and Arctic grayling. The nearby wetlands provide habitat for aquatic insects and waterfowl.

Select policy directions derived from this study and affecting the lease area were as follows:

- Snowmobiles require access to Great Slave Lake.
- The zoning by-law continues to provide a 50 metre setback on all lakes to protect environmentally sensitive areas and allow public use.
- Recognize a contiguous multi-purpose pathway from Negus Point to Giant Mine
- Heritage sites are part of the park system.
- Recognize cross-country ski routes and where they intersect.

In general, the study created policies which ensured that future design guidelines for the site must:

- Indicate developer requirements for useable land for trails and park development
- Use a development scheme approach for all new subdivision developments in order to implement parks, trails and open space standards.

As a planning tool, the Integrated Parks, Trails and Open Space Study provides a variance of required outdoor facilities until 2015. With this variance in mind, the lease area can be used to accommodate future recreational needs, such as:

- A fast ball field
- Slow pitch fields
- Soccer fields
- Tennis courts

#### **5.4 Waterfront Management Plan**

The Waterfront Management Plan was prepared by the City in November 2001. Yellowknife Bay, Back Bay and their shorelines are perhaps the City's most recognized and unique characteristic and they serve to define our northern lifestyle. This distinction makes our waterfront an area of great importance.

The Waterfront Management Plan is a refinement of waterfront policies from past planning documents, public consultation and physical analysis. The planning process has produced objectives, operational policies and specific courses of action for enhancing access to the water's edge, protecting the natural attributes of the shoreline, resolving land tenure concerns and enhancing the tourism aspect of Great Slave Lake within the City of Yellowknife.

A summary of priorities, specific proposals and budget estimates shows a proposed budget of \$5K for Giant Mine Waterfront design and \$116K for Giant Mine Waterfront construction.

This area of the community is defined as Littoral F – Back Bay/Giant Mine. This littoral area begins near the outlet of the drainage network for Niven Lake, extends up to the Giant Mine Lease area and includes the shoreline to the mine houses. There are three basic areas of development within this littoral area: the Back Bay Cemetery; a private residence; and the Giant Mine marina and lease area. The rest of the littoral area is pristine and well preserved with a natural shoreline, high rock outcrops and interspersed with several accessible rocky beaches.

There is vehicular access to the private residence and the Giant Mine waterfront. For the rest of the area, littoral access is restricted to boats or by foot via an informal trail system through the rock outcrops, ravines and dense vegetation. Ski trails also provide access at several points. Overall, this littoral area is an attractive natural area with an excellent overview of Old Town, Back Bay and Latham Island. There is ample opportunity for waterfront development in the form of waterfront parks, viewpoints, trails, boat launches, historic preservation and enhanced recreational activities.

#### 1. Waterfront Management Plan Policies

- a. The natural attributes for this littoral area will be protected with development being limited in order to preserve the natural and cultural heritage for the enjoyment of future generations.
- b. Public access to the shoreline will be enhanced with the development of a waterfront park, viewpoints, interpretive trails and a boat launch.
- c. With the exception of existing private residences, all lands in this littoral area will be under control of the Municipal and Territorial Governments, to be used for public purposes.
- d. Notwithstanding the above policy, development of the Giant Mine waterfront will be determined by further study which will assess the need for reclamation,

remediation, fish habitat preservation, heritage preservation and economic development.<sup>4</sup>

2. Specific Proposals (relating to the Giant Mine waterfront)

- a. In the Giant Mine Waterfront Lease area, the present water related uses will remain. The site for a boat launch will be determined. If possible the boat launch will be constructed provided the necessary approvals can be obtained. Further planning of waterfront/heritage park will commence in consultation with the present users and the public.
  - b. Within this littoral area, a system of trails and viewpoints will be designed and built over the next five years, contingent on available funding. The trail system will extend to the Giant Mine Waterfront area and will be strategically laid out so as to provide a link with the cross country ski trails. Ideally it should be designed for both pedestrian and bicycle use. Low cost and low maintenance are two other design parameters.
3. The adjacent littoral area, which is defined as Yellowknife River/East Shore (Littoral G). The area extends from the Giant Mine Town Site along the westerly shore up to the mouth of the Yellowknife River where the bridge on the Ingraham Trail crosses and then down the easterly shoreline to the City Limits near Burwash Point.
- a. Relative Policies
    - i. Further new developments of the shoreline in this littoral area will be prohibited until there is pressure to develop, at which time further study will be initiated to determine the extent of the development. Existing snowmobile trails should be protected and enhanced.

## 5.5 Residential Growth Study

The Residential Growth Study was prepared by the City in June 2004. The City is currently experiencing a surge in demand for more residential land units but there is a very low supply of available land for residential development. The Residential Growth Study was prepared to evaluate the feasibility of infill development opportunities as well as new larger scale development opportunities.

At the time of this study, the Giant Mine Waterfront lease area was not identified as an area of

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<sup>4</sup> This policy refers specifically to the current 2006 "Giant Mine Town Site and Waterfront Plan"

future residential development.

Long term residential development plans identified in the Residential Growth Study include:

- Preparing a development scheme for Tin Can Hill and Negus Point
- Preparing a development scheme for Taylor Road Area
- Review residential potential for the area west of the airport

Based on the Residential Growth Study the following conclusions can be made:

- Over the next five years (2004-2009), the population increase of 2,073 will see a demand for some 740 new dwellings (based on an average of 2.8 persons per dwelling).
- Over the next ten years (2004 – 2014), the population will increase by a total of 4,067 which will result in a demand for a total of 1,453 dwellings.
- And, over the entire population projection period of 2004 to 2019, the population will increase by a total of 5,678 which will see a demand for a total of 2,028 dwellings.
- This means a total standard land demand of 199 hectares (ha).

Smart Growth is designed to create liveable cities, promote economic development and protect open spaces and environmentally sensitive areas. Smart Growth principles to apply to residential development in Yellowknife are:

- Preserve green space, environmentally sensitive areas and natural beauty.
- Make full use of existing urban land and infrastructure.
- Mix land uses (combining homes, stores, offices and services in the same neighbourhood).
- Provide a variety of transportation choices.
- Take advantage of innovative building design and infrastructure technology.
- Create a range of housing opportunities and choices
- Create neighbourhoods that invite walking and bicycling.
- Foster distinctive, attractive communities with a strong sense of place.

### Overarching Public Policies

- The public interest in this site has historically focused on open space and recreation
- Public interest is represented through the General Plan, Zoning By-Law and other planning documents
- The Residential Growth Study does not identify the lease area for future residential development

Given the concepts of Smart Growth and sustainable development the residential development

of a satellite community, such as the Giant Mine lease area, would be considered an inefficient growth strategy. It would be considered inefficient because there is currently land available within the built-up area of the community. Given the physical and climatic characteristics of the City of Yellowknife, development costs are high and, if scattered, the infrastructure is inefficiently used and becomes uneconomical to maintain and upgrade.

As the latter section of this report will present, residential development in the Giant Mine lease area should only be considered by the community and Council once the Tin Can Hill and Yellowknife Bay South areas are developed. These two areas are highlighted in the General Plan as the next phases of Development after Niven Lake. Notwithstanding the recommendation in the General Plan, all major growth management decisions must be made in light of the Akaitcho land selection process and land tenure of the City of Yellowknife.

## 6 AKAITCHO DENE FIRST NATIONS

The Giant Mine lease area is situated within the Akaitcho Dene First Nations (DFN) traditional territory. A map of the traditional territory is provided in **Appendix E**. An Interim Measures Agreement (IMA) exists among the Akaitcho DFN, "Canada" and the GNWT. A copy of this agreement is also included in **Appendix E**.

As a background, the Crown entered into Treaty #8 with ancestors of the Akaitcho DFN at Deninu Kue in 1900. As the agreement reads, the ancestors of the Akaitcho DFN entered into Treaty #8 with the understanding that:

- The agreement would last as long as the sun shines, the rivers flow and the grass grows;
- the three Parties have entered into a Framework Agreement on July 25, 2000 to guide the negotiation of the Akaitcho agreement;
- the Parties recognize that certain lands within Akaitcho DFN asserted territory are of environmental, cultural, economic and spiritual importance to the Akaitcho DFN. The Parties have recognized that appropriate interim measures are necessary in order to advance negotiations; and
- Canada and the GNWT acknowledge that the Akaitcho DFN asserted their traditional territory in a map attached to the Framework Agreement.

### Akaitcho Dene First Nations

- The lease area is within the Asserted Akaitcho traditional territory
- An Interim Measure Agreement currently exists among the Akaitcho Dene First Nation, "Canada" and the GNWT

The Minister of MACA also indicated that decisions on further land transfers in the City would be deferred until January 2006 as requested by the Akaitcho DFN. This would allow time for the Yellowknives DFN to complete land identification through the Akaitcho Process negotiations.

Commissioner's land transfers within the City have been delayed as a result of the on-going Akaitcho Process negotiations and consultation requirements established under the Akaitcho Interim Measures Agreement and the GNWT Land Lease-Only Policy.

## 7 BUILDING HISTORY AND STRUCTURAL SOUNDNESS

**Table 7.1: Summary of Buildings currently located within the Giant Mine lease area and their General Condition (Based on Silke 2005)†**

| Structure (Map I. D.) | Historical Building Designation | Dimensions           | Structural Condition | Special Considerations                                      |
|-----------------------|---------------------------------|----------------------|----------------------|---|
| Curling Rink (CR)     | N/A                             | N/A                  | Poor                 | No evident concrete foundation                              |
| House (1)             | No. 289A and 289B               | 24' x 64'            | Excellent            | None  |
| House (2)             | No.254                          | 24' x 32'            | Excellent            | None  |
| House (3)             | No.255                          | 24' x 32'            | Excellent            | Interior water damage                                       |
| House (4)             | No. 257                         | 24' x 32' + 7' x 10' | Excellent            | None  |
| House (5)             | No. 247A and 247B               | 24' x 32'            | Excellent            | None  |
| House (6)             | No. 211                         | 24' x 32'            | Excellent            | None  |
| House (7)             | No. 212                         | 24' x 34'            | Excellent            | None  |
| House (8)             | No. 213                         | 24' x 42'            | Excellent            | None  |
| House (9)             | No. 221                         | N/A                  | Excellent            | None  |
| House (10)            | No. 217                         | N/A                  | Excellent            | Mine Manager's house [Recommended for Heritage Designation] |
| House (11)            | No. 168                         | 24' x 50'            | Excellent            | Guest House [Recommended for Heritage Designation]          |
| House (12)            | No. 216                         | N/A                  | Excellent            | None  |
| House (13)            | No. 207                         | 26' x 30'            | Excellent            | Interior water damage                                       |
| House (14)            | No. 206                         | 26' x 30'            | Excellent            | Old Post Office [Recommended for Heritage Designation]      |

† Map I.D. refers to numbers and labels found in Silke, R.A. (2005). Giant Mine Townsite: Historical Building Inventory. Yellowknife, City of Yellowknife Heritage Committee.



|            |         |                          |           |  |
|------------|---------|--------------------------|-----------|--|
| House (15) | No. 200 | 24' x 28'                | Excellent | None   |
| House (16) | No. 202 | N/A                      | Excellent | None   |
| House (17) | No. 201 | 24' x 28'                | Excellent | None   |
| House (18) | No. 204 | N/A                      | Excellent | None   |
| House (19) | No. 203 | 24' X 36' + 10'x<br>13'  | Excellent | Significant in<br>community's history<br>[Recommended for<br>Heritage Designation] |
| House (20) | No. 208 | 24' x 34' +<br>7' x 11'  | Excellent | None   |
| House (21) | No. 209 | 26' x 34'                | Excellent | None   |
| House (22) | No. 210 | 26' x 34' + 10' x<br>17' | Excellent | None   |

**Table 7.2: Summary of Buildings Currently Located within the Giant Mine lease area and their General Description and Condition, Foundation, Origin and Occupancy Status (Based on Silke 2005)†**

|  | Curling Rink (CR) | House (1) | House (2) | House (3) | House (4) | House (5) | House (6) | House (7) | House (8) | House (9) | House (10)             | House (11) | House (12) | House (13) | House (14) | House (15) | House (16) | House (17) | House (18) | House (19) | House (20) | House (21) | House (22) |
|--|-------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Year Built/Erected   | 1947              | 1950      | 1946      | 1946      | 1947      | 1948      | 1953      | 1956      | 1959      | 1988-1989 | Portion built in 1930s | 1958       | 1945       | 1951       | 1951       | 1950       | 1988-1989  | 1950       | 1988-1989  | 1950       | 1951       | 1953       | 1953       |
| Year Vacated   | Late-1980s        | 2000      | 1990s     | 2004      | 1990s     | 1990s     | 1990s     | 1990s     | 1990s     | 2005      | 2004                   | N/A        | 1990s      | 1980s      | 1990s      | N/A        | 2005       | 1990s      | 2005       | 1990s      | 1990s      | 1990s      | 1990s      |
| Frame structure with Timber Posts Anchored into Concrete Foundations |                   | x         | x         | x         | x         | x         | x         | x         | x         |           |                        |            | x          | x          | x          | x          |            | x          |            | x          | x          | x          | x          |
| Duplex   |                   | x         |           |           |           | x         |           |           |           |           |                        |            | x          |            |            |            |            |            |            |            |            |            |            |
| Good Structural Condition  |                   | x         | x         | x         | x         | x         | x         | x         | x         | x         | x                      | x          | x          | x          | x          | x          | x          | x          | x          | x          | x          | x          | x          |
| Poor Structural Condition  | x                 |           |           |           |           |           |           |           |           |           |                        |            |            |            |            |            |            |            |            |            |            |            |            |
| Interior Water Damage  |                   |           |           | x         |           |           |           |           |           |           |                        |            |            | x          |            |            |            |            |            |            |            |            |            |
| Prefabricated Structure  |                   |           |           |           |           |           |           |           |           | x         |                        |            |            |            |            | x          | x          | x          | x          | x          |            |            |            |

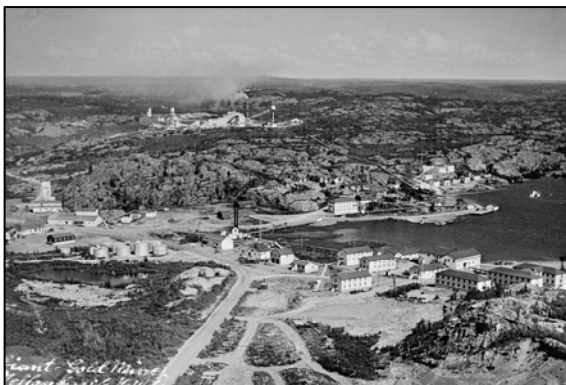
† (Map I. D. refers to numbers and labels found in Silke, R.A. (2005). Giant Mine Townsite: Historical Building Inventory. Yellowknife, City of Yellowknife Heritage Committee.

## 8 GIANT MINE LEASE AREA BACKGROUND

A variety of temporary and permanent structures have been built and rebuilt in the Giant Mine lease area throughout the exploration and mineral extraction of the Giant Mine site. The first permanent camp was built in 1936 in the current area of the lease area. This camp, which consisted of log cabins and framed tents, was located on Lakeshore Road and adjacent to houses currently located in front of the public wharf. A list of the structures erected during the first permanent camp and their function can be found in a report entitled “Giant Mine lease area: Historical Building Inventory” submitted by Silke (2005) to the City of Yellowknife Heritage Committee. Silke notes that, of the permanent structures created during this time, only one of the staff houses still exists (Tables 7.1 and 7.2).

The lease area was expanded in 1943 – 1944 with what is known as the Construction Camp. The Construction Camp was located where the current boat launch parking lot is situated and consisted mainly of prefabricated structures. The camp was used successively by diamond drilling crews, shaft sinkers and, lastly, construction crews in 1946 – 1948.

Unlike the older camps, which were built primarily for exploration and construction crews, the structures currently located at the lease area were built to house workers associated with mine production and operation. Older camps were replaced with new permanent facilities to facilitate the transition from construction and exploration operations to mine production. Most cabins built along Lakeshore Road were demolished in the early 1950s and buildings located at the construction camp were dismantled or were recycled into new buildings.



Aerial View of Giant Mine c. 1955



Giant Mine Housing c. 1955

The Giant Mine lease area was built in planned subdivisions with most of the houses located in the Uphill Road area built between 1946 and 1948; three houses were later added to the Uphill Road area in the late 1950s. Houses located in the Lakeshore area were built between 1950 and 1953. Bunkhouses, which no longer remain at the site, were built between 1947 and 1953. A curling rink was also built during this period of expansion in 1947. A few houses were brought into the lease area during the 1980s; these new homes replaced pre-existing structures. It was expected that the lease area would have been completely vacated by the end of November, 2005.

## **9 BUILDINGS LOCATED WITHIN THE GIANT MINE LEASE AREA**

The Giant Mine lease area is home to various types of structures. Where information was available from secondary sources it has been detailed below. Building (structural) details on the power plant, the "rec hall", cruising club and pump house infrastructure was not available at the time of this report. It is important to note that the Cruising Club, "club house", is member-owned. Therefore, additional consultation will be required with the cruising club to investigate the structural integrity of the building they are currently using, as well as any pending lease negotiations or intentions they may have with respect to building relocation or improvements.

The mixed-use residential/commercial/recreation vision detailed in this report would assume that all structures identified below, except those identified in the policy section as potential heritage buildings, would require demolition and land remediation to a level that allows for human occupation.

### **Recreation**

The curling rink was built in 1947. It contained one sheet of ice and a club room. An ice plant was built at the end of the rink in the early-1980s and the curling rink received a new roof and new bathrooms in the mid-1980s. However, the curling club eventually ceased operations in the late-1980s due to a lack of public support. The rink was built on a frame structure with no concrete foundation and is currently in disrepair.

### **Residential**

House No. 289 (1) is a duplex which was built in 1950. It is constructed on timber posts anchored into concrete foundations and is considered to be in excellent structural condition. Although intermittently occupied since its construction, both suites have been vacant since 2000.

House No. 254 (2) was built 1946. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. It was last occupied in the 1990s.

House No. 255 (3) was built in 1946. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. However, the interior sustained water damage during the winter of 2004-2005 due to a malfunction. It has

been vacant since 2004.

House No. 257 (4) was built in 1947. It is built on timber posts anchored into a concrete foundation, is considered to be in excellent structural condition and has a small annex addition. It was last occupied in the 1990s.

House No. 247 (5) is a duplex which was built in 1948. It is constructed on timber posts anchored into a concrete foundation and is in excellent structural condition. Both suites were last occupied in the 1990s.

House No. 221 (6) was built in 1953. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. It was last occupied in the 1990s.

House No. 212 (7) was built in 1956. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. It was last occupied in the 1990s.

House No. 213 (8) was built in 1959. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. This house is one of the few dry-walled houses located at the site. It was last occupied in the 1990s.

House No. 221 (9) was purchased by Giant Mine from Pine Point and re-erected in the current site between 1988 and 1989. It is in excellent structural condition.

A small portion of House No. 217 (10) dates back to the late-1930s and was used as a staff house during exploration. The building has had seven additions over the years. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. This house was occupied by the mine manager and was considered to be a social center, often used for parties on the weekends and to entertain local dignitaries. It was last occupied in 2004. As per the historic use of this house dating from the 1930s and the role it played within the community, it is recommended that this house receive Heritage Designation.

House No. 168 (11) was built in 1958. It is a cedar cabin with a 'Pan-Adobe' construction and built on a concrete foundation. It is in excellent structural condition.

This three-bedroom house was used to accommodate VIPs and guests at the mine site. Later, it housed both single and summer student employees working at the Giant Mine. Like House No. 217 (10), it is recommended that this house receive Heritage Designation due to its role in the community and its current structural integrity.

House No. 216 (12) was built in 1945 and was originally used as a staff house for single male employees, but by 1950, it was converted into a duplex for families. Constructed on timber posts anchored into concrete foundations, house No. 216 is in excellent structural condition. Suite A was vacated by the 1990s and Suite B was last occupied in the 1990s.

House No. 207 (13) was built in 1951. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition, however, the interior has sustained water damage. It was last occupied in the 1980s, likely remaining vacant since then due to the water damage.

House No. 206 (14) was built in 1951. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. A portion of this house was used as a post office during the 1990s. It was last occupied in the 1990s. As this house was once used as a post office within the community and is currently structurally sound, it is recommended that this house receive Heritage Designation.

House No. 200 (15) was built in 1950. It is a prefabricated structure from the Canol project in Norman Wells and is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. It was occupied by mine employees until the 1980s and was later used to house summer geology students.

House No. 202 (16) was brought on to the site between 1988 and 1989 to replace a demolished house built in 1950. It is considered to be in excellent structural condition.

House No. 201 (17) was built in 1950. Like house No. 200 (15), it was a prefabricated structure from the Canol Project in Norman Wells. It is built on timber posts anchored into concrete foundations. It was last occupied in the 1990s.

House No. 204 (18) was brought on to the site between 1988 and 1989 to replace a demolished duplex house built in 1949. It is in excellent structural condition.

House No. 203 (19) was built in 1950 and an annex addition was constructed in 1963. It is built on timber posts anchored into concrete foundations and is in excellent structural condition. It was also a prefabricated structure from the Canol Project in Norman Wells. The basement crawl space has two children's bedrooms with very low ceilings. Former resident, Doug Stoodley, made many additions to the house and yard, including a brick fire pit and tree house in the back of the property, the bedrooms in the basement or crawl space and an interior fire place. This house was last occupied in the 1990s. Due to this house's history, dating back to the Canol Project in Norman Wells, as well as its structural integrity, it is recommended that it receive Heritage Designation.

House No. 208 (20) was built in 1951. It is constructed on timber posts anchored into concrete foundations and is in excellent structural condition. It has a 7' x 11' porch. It was last occupied in the 1990s.

House No. 209 (21) was built in 1953. It is constructed on timber posts anchored into concrete foundations and is excellent structural condition. It was last occupied in the 1990s.

House No. 210 (22) was built in 1953 and includes a 10' x 17' annex addition. Like most other homes in site, it is a frame building on timber posts anchored into concrete foundations and is in excellent structural condition. It was last occupied in the 1990s.



Example of current housing in Giant Mine



Example of current housing in Giant Mine



By the end of November 2005, it is expected that the Giant Mine lease area will be completely vacated. However, at the time this report was produced, the residential structures and the town infrastructure remain. A network of utilidors was created for water and wastewater transport and power lines hang overhead. The Department of Indian and Northern Affairs Canada (INAC) are expected to remove all of the residences and associated infrastructure with the continued decommissioning of the site.

### Existing Buildings

- A historic building inventory was completed in 2005 by Silke
- There are 22 houses and 1 curling rink identified on site
- 4 houses are identified as having heritage significance

Although Giant Mine is currently vacant, many Yellowknife and surrounding area residents make use of the site today. The Cruising Club operates near the south end of the lease area. Here, sail boats are moored in Back Bay during ice-free periods. The City of Yellowknife constructed a boat launch in 2001 to allow for greater public access into Back Bay. The boat launch is accessed via a gravel road off of the Ingraham Trail adjacent to Baker Creek. A parking area is situated near the boat launch, across the road from Baker Creek and adjacent to the Ingraham Trail.

## **10 PUBLIC USE AND SERVICING**

### **10.1 Water System Servicing and Infrastructure**

As INAC is willing and plans to remove all existing infrastructure in the lease area, it is important that the City consider the constraints and opportunities to provide service to the lease area for any future development.

The City currently draws raw water from the Yellowknife River at Pump House #2. An 8 km transmission line conveys water from Pump House #2 (PH #2) to Pump House #1 (PH#1) located on the shore of Great Slave Lake on 44th Street. The transmission line runs east of Latham Island. There was a branch-line servicing the existing Mine Site with tees off north of Latham Island. Some of the issues associated with the continued use of the branch line to service the lease area that must be considered are:

- The integrity of the branch is not known and may have to be replaced or repaired.
- Recent legislation requires that surface water sources are filtrated and disinfected. The City's proposal to meet this legislation is to install the filtration equipment at PH #1, downstream of the Giant Mine service line. A new filter or a new line would therefore have to be installed to service the lease area.

Alternatives to the existing water line from PH #2 would be:

- Trucked services from the City of Yellowknife or PH #2.
  - Level of service (demand use) for residential development would be higher than the demand associated with a use such as a recreation park. Higher demand land uses will increase the frequency of trucked services which would result in overall higher operating costs.
  - Distance for trucked services from the truck fill stations to the Giant Mine site is relatively long and will have an associated high delivery cost.
- New service line from the City's distribution system that will run along Highway 4.
  - Distance of line is relatively long compared to the expected demand use. Very high capital costs per user of the system.

## 10.2 Wastewater System Servicing and Infrastructure

The wastewater system servicing and infrastructure must be investigated for any future development of the lease area. Currently, sewage is pumped and disposed into the tailings management area of the Giant Mine site. Wastewater currently only comprises a small portion of material treated at the tailing management area (Ron Connell, pers. comm.). Continued use of the tailings management area for sewage disposal from the lease area will not be permitted.

The City uses both piped and trucked service for sewage collection. To provide service to the lease area will require on-site development of a wastewater system. Wastewater system considerations will need to be evaluated prior to development. Some of the potential wastewater system considerations are as followed:

- For a collection piping network and sewage treatment on-site, a new treatment system created specifically for the Giant Mine Town Site would be required. Licencing of an on site sewage treatment system for disposal into Back Bay would be difficult.
- For a collection wastewater piping network with on-site holding tank(s), wastewater would be collected and then trucked to Fiddlers' Lagoon.
- For a collection piping network tied in to existing Yellowknife service:
  - Would be connected to the main line at the Explorer Hotel or at Niven Lake. This would result in a relatively long force main line and a lift station. This would be a very expensive option.
  - Would be connected to the existing Fiddler Lake force main south of the Sand Pits and continue on to Fiddlers' Lagoon. This would also result in a long distance for a force main and lift station.

### Servicing

- Current water supply and sewer services have been discontinued.
- Trucked sewer and water services are the most economical option
- Piped service is possible but with a high capital cost

Considerations of the demand use versus the implementation costs of such systems are necessary to assist in proceeding with this option.

## **11 GEOLOGY AND SOILS**

The area surrounding Giant Mine has long been known to contain gold. Weledeh Yellowknives Dene women often found gold-bearing rocks while picking blueberries near the present location of the Giant Mine (Yellowknives Dene First Nation Elders Advisory Council 1997). Gold claims were staked in 1935 after the discovery of small but high-grade vein exposures (Silke 2005). The discovery of gold-bearing arsenopyrite ore bodies was the impetus for the development of the Giant Mine. Giant Mine produced 7 million ounces of gold.

### **11.1 Bedrock**

While most of the bedrock analysis originates from studies that pertain to the Giant Mine site, the position taken in this report is that this information is still pertinent to the town site lease area and will, therefore, be used for the purpose of this visioning project. A brief description of the geological setting was described by EBA Engineering Consultants Ltd. (1998).

The Giant Mine is located in the Yellowknife Greenstone Belt of the Archean Age (approximately 4 billion to 2.5 billion years ago). The belt extends from Great Slave Lake for 50 kilometres and is comprised of volcanic rock – metabasalts and metagabbros – overlain by sedimentary rock. This grouping of rocks also includes granite intrusions. Gold mineralization is present within the metabasalt units and is associated with arsenopyrite mineralization which is a naturally occurring arsenic bearing mineral. Background arsenic concentrations tend to be relatively high in local watersheds - a natural attribute likely due to the arsenopyrite ore bodies which are locally abundant in the bedrock.

The topic of arsenic loading in Baker Creek and arsenic contamination will be addressed in more detail in Section 11.2.

### **11.2 Soil**

Visual soil descriptions were documented during a study conducted by Deton'Cho Environmental Alliance (2000). In the final report, much of the soil was described as brown silt, grey crushed rock, or a combination of both. Much of the Giant Mine lease

area is composed of exposed rock or shallow soils overlying the bedrock.

Areas where the soils are deepest are found between rocky outcrops which tend to retain much of its moisture throughout the growing season and have a relative abundance of nutrients (Jacques Whitford Environment Limited 2003). These areas allow for the greatest diversity of plant species and plant cover. Areas with shallow soils retain less moisture and nutrients and, thus, support less plant diversity. Rock outcrops support a limited plant community due to a lack of moisture and nutrients (Jacques Whitford Environment Limited 2003).

#### 11.2.1 Arsenic Contamination

The Giant Mine is perhaps the most publicized contaminated site in Northern Canada. During the first three years of operation, arsenic trioxide dust, a toxic by-product, was released directly into the air resulting in surface contamination. In the 1950's, the roaster and bag house was installed and the arsenic trioxide dust was collected and returned underground to worked out stopes. The use of the roaster and bag house continued through the life of the mine. Approximately 260,000 tons of arsenic trioxide containing dust is currently stored underground at the Giant Mine site. The long term management of the underground arsenic storage is being managed by INAC.

Human health and ecological risk assessments conducted for Yellowknife in 2002 found that the risk posed by naturally occurring and surface contamination (excluding the underground storage) arsenic to human health were near or below 'essentially negligible' (Riskologic Scientific Services Inc 2002A). Ecological risks were found to be low for avian species (goshawk and spruce grouse), but estimated exposure to arsenic was 2.4 and 2.6 times higher than benchmark doses for lynx and snowshoe hare respectively (Riskologic Scientific Services Inc 2002B). These studies were based primarily on modeling rather than field data. However, many of the studies used to assess arsenic accumulation in fish, produce and aquatic vegetation is based on field data.

The background concentration of arsenic tends to be high in both the water and soils around Yellowknife. Soil samples taken from the lawns in the residential area of the Giant Mine lease area and other surface fill materials had average total arsenic concentrations of 87 parts per million (ppm) (Ollson et al. 2001).

The Department of Environment and Natural Resources (ENR) of the GNWT has developed site specific guidelines for arsenic in soils and sediments in the Yellowknife area. The Canadian Environmental Quality Guideline (CEQG) of arsenic in soil is 12 ppm (Canadian Council of Ministers of the Environment, 2004). Background concentrations in Yellowknife (created by naturally occurring arsenic concentrations) have been determined to be 150 ppm. The site specific guidelines were developed using a cancer risk level of 1 in 100,000, which is still considered “essentially negligible” by Health Canada. (The CEQGs use a risk level of 1 in 1,000,000.) Taking this in account, as well as the background concentration of 150 ppm and limitations based on climate (soil accessible for only 5 months of the year), the following guidelines were developed:

### 11.1: Site Specific Guidelines for Arsenic in Soils and Sediments

| Medium   | Residential Criteria (ppm) | Industrial Criteria (ppm) | Boat Launch Criteria (ppm) |
|----------|----------------------------|---------------------------|----------------------------|
| Soil     | 160                        | 340                       | 220                        |
| Sediment | N/A                        | N/A                       | 150                        |

The average arsenic concentration of 87 ppm in samples taken from lawns in the residential area is below the residential guidelines of 160 ppm.

In the study conducted in 2001 by Ollson et al., soil samples were taken from a variety of locations around the Giant Mine lease area. Although arsenic concentrations were found to be higher than background in both lawn and crushed rock samples taken from the Giant Mine lease area, Ollson cautioned that assuming that the arsenic in the samples are bioavailable – readily absorbed or become physiologically available – would be a ‘serious overestimate’. Ollson further states that although the weathering of the crushed rock over time will release arsenic into the soil, it is difficult to determine if the arsenic will be a risk to human health.

### Geology and Soils

- The geology of the lease area is typical of the Yellowknife area.
- Back ground elevated levels of arsenic exist from both natural sources and industrial activities.
- Due to the industrial nature of the site historic soil contamination exists
- Site specific environmental assessment will be required as development proceeds. This is normal procedure for development on historic industrial sites.

A health risk assessment experiment examined the potential risk posed by the consumption of garden produce grown in the Yellowknife area, including the Giant Mine lease area (Koch et al. 2001). Garden produce grown in the Yellowknife region was donated and the health risk assessment was based on arsenic content found in the produce. Average total arsenic concentration in the soils of vegetable gardens sampled in Yellowknife was 31 ppm. Average total arsenic concentrations in the soils of vegetable gardens sampled in the Giant Mine lease area were much higher with an average of 202 ppm. The researchers found that although produce grown in Yellowknife had arsenic concentrations around one order of magnitude greater than produce found on other areas of Canada, they calculated that the consumption of locally grown produce would not be a health risk.

#### 11.2.2 Other Sources of Contamination

Two other contaminants, hydrocarbons and Polychlorinated Biphenyls (PCBs), were found in the soil in and near the Giant Mine lease area.

- Hydrocarbon contamination was discovered during the construction of the boat launch at the Giant Mine lease area. The boat launch was constructed on an abandoned fuel barge landing for the Giant Mine. During construction, it was noticed that an old fuel-manifold had leaked and contaminated the surrounding soil (Jivko Engineering 2002). To prevent the contaminated material from entering the lake, a protective berm was constructed and the contaminated soil and rocks were removed. Laboratory analysis of the remaining soil and rock confirmed that contaminated material had been successfully removed.
- Soil samples taken near the transformer No. 1 substation located adjacent to the Giant Mine lease area and the Ingraham Trail were found to be contaminated with 0.18 ppm of PCBs (Deton'Cho Environmental Alliance 2000). This amount is well below the Canadian Soil Quality Guidelines of 1.3 ppm for residential and parklands and therefore, the PCB contaminated soil near transformer No. 1 is not considered a risk to human health or to the environment.

As development proceeds, site specific environmental assessment will be required as is common practice for development of historic industrial sites.

## **12 GROUND WATER AND SURFACE WATER RESOURCES**

### **12.1 Ground Water**

There is little information concerning groundwater movements within the Giant Mine lease area proper, however, there have been many studies relating to the seepage and infiltration of surface water into the mine shafts at the Giant Mine site. Locally recharged groundwater is high in arsenic, approximately 0.5 ppm, compared to the surface waters of Baker Creek (Clark 2001).

As a result of the oxidation of arsenopyrite, the groundwater naturally contains elevated concentrations of dissolved arsenic. Current background total arsenic concentrations in the surface water of Baker Creek is around 35 parts per billion (ppb). This figure was obtained from sampling sites upstream of the Giant Mine site.

### **12.2 Baker Creek, Back Bay Water Quality**

#### **12.2.1 Water Quality**

##### **1. General Water Quality**

Past water quality studies have revealed that in the 1990s, Back Bay was a neutral water body (approximately 7 pH), high in ammonia (approximately 1 ppm) and high in total phosphorus (approximately 0.1 ppm). Phosphorous is most often the limiting nutrient in lakes and streams (Schindler 1974 and 1977). Back Bay also had high conductivity for freshwater, with a mean conductivity value of > 4000 µS/cm (Jackson et al. 1996), making it a sub-saline water body.

##### **2. Current and Historical Arsenic Concentrations**

Current concentrations of total arsenic at the mouth of Baker Creek are a result of the naturally occurring high background levels found in Baker Creek and Giant Mine mill effluent and tailings discharge. The arsenic contained in the tailings discharge originates from gold-bearing arsenopyrite ore bodies which were mined at the Giant Mine (Clark 2001). Even though a great percentage of the arsenic is removed from solution, discharged mill effluent still contains about 200 ppb of dissolved total arsenic (Ron Connell, pers. comm.).

In 2001, INAC commissioned a Human Health Risk Assessment of the Giant Mine (Office



of the Auditor General of Canada 2002). The risk assessment concluded that in the absence of a suitable water treatment system (which is in operation), the mine would be releasing unacceptable amounts of arsenic into the surrounding water. These risks are controlled by the water collection and treatment system in operation at the site.

#### 12.2.2 Sediment Samples

Sediment samples from Baker Creek demonstrated a significant increase in the total arsenic concentration in sediments downstream compared to sediments upstream of the effluent discharge site (Dillon Consulting Limited 2002). Further statistical analysis showed this same difference between most of the sites upstream and downstream of the discharge site. It should be noted that not all sites sampled upstream of the discharge site were statistically different from sites sampled downstream of the site. Similarity, in these sample sites could be due to the naturally occurring background arsenic concentrations.

Statistical analysis of the data taken from aquatic vegetation from the same sample sites above and below the discharge site in Baker Creek yielded no significant difference in arsenic concentration. This data indicates that although arsenic concentrations of surface water and sediments are high in sites downstream of the effluent discharge site, there was no statistical difference in the amount of arsenic taken up by aquatic vegetation (Dillon Consulting Limited 2002).

Previous studies have yielded high arsenic concentrations in the sediments of Baker Creek. In 1997, the average arsenic concentrations in surficial sediments at its outflow were 2024 ppm. A sediment sample taken from the breakwater near the Baker Creek outflow was 3140 ppm (Royal Military College of Canada Environmental Sciences Group 2001).

Other results from sediment samples taken in the early 1990s from Baker Creek and the Old Giant Tailings release area were 1864 ppm and 500 ppm respectively (Jackson et al. 1996). This is comparable to a later study which found that arsenic concentrations in the sediments ranged between 826 to 1200 ppm in Yellowknife Bay near the tailings management area (Golder Associates Limited 2002). All results are higher than the site specific guideline for arsenic in sediments (220 ppm).

Although arsenic is being removed from the surface water, it is being sequestered in the sediments through chemical or biological precipitation, or a combination of both. However, the elevated concentrations of arsenic in the sediments are unlikely to be bioavailable since it is bound to particulate matter and poses much less of a threat than dissolved arsenic.

### 12.2.3 Aquatic Vegetation

Aquatic vegetation varies in Baker Creek. Common species are cattail, swamp horsetail, common mare's tail and water sedge. The opening of Baker Creek, where it discharges into Back Bay, is dominated by a low lying wetland and is bordered by Canada blue-joint, Richardson's water moss, common horsetail and willow (Jacques Whitford Environment Limited 2003).

### 12.2.4 Arsenic Concentration and Biomagnification in Fish

Studies have been conducted examining the bioaccumulation of arsenic in fish. In the early 1990s, elevated concentrations of arsenic were found in livers and kidneys of lake whitefish (*Coregonus clupeaformis*) and the kidneys, liver and muscle of northern pike (*Esox lucius*) which were captured near Baker Creek (Jackson et al. 1996). A later study reported that arsenic concentrations in the gastro-intestinal tract of lake whitefish, northern pike, walleye (*Stizostedion vitreum*), white sucker (*Catostomus commersoni*) and the longnose sucker (*Catostomus catostomus*) were significantly greater than arsenic concentrations in the liver and muscle in the same five species (de Rosemond et al. 2004).

Total arsenic concentrations were 0.77 ppm and 1.07 ppm in the muscle and liver of lakewhitefish from samples taken in August 2003 compared to total arsenic concentrations of 0.16 ppm and 0.82 ppm for muscle and liver samples respectively taken from lake whitefish between 1992

and 1993. Total arsenic concentrations were 0.97 ppm and 0.42 ppm for muscle and liver samples taken from northern pike in 2003, compared with total arsenic concentrations of 0.29 ppm and 0.72 ppm for muscle and liver samples taken from

## Water Quality

- Water quality of Baker Creek is impacted by the Giant Mine site.
- Sediments of Back Bay are impacted by past industrial activity.

northern pike between 1992 and 1993.

The apparent increase in total arsenic concentrations in lake whitefish and northern pike between the early 1990s and 2003 is likely due to sampling methods rather than changes in bioavailability or accumulation of arsenic. The study conducted in 2003 included fish in the same age class, whereas the 1990s studies included fish from a variety of age classes. As a result, it is difficult to conclude that arsenic concentrations have increased in the muscle and liver tissue of fish within the same age class between 1992 and 1993 and 2003.

Arsenic tends to accumulate in aquatic organisms occupying lower trophic levels, such as zooplankton and benthic invertebrates, rather than aquatic organisms which occupy higher trophic levels such as fish (Mason et al. 2000). The longnose and white sucker had the greatest total arsenic concentrations in 2003. Both of these species are bottom-foragers, feeding on benthic invertebrates. Therefore, it is expected that total arsenic concentrations would be greater in the suckers rather than pike, which primarily preys on other fish (piscivorous). de Rosemond et al. (2004) concluded that the majority of the arsenic species found in the tissues of fish sampled in 2003 were organic species of arsenic and concluded that the arsenic found in the fish captured in Back Bay were of low risk to humans but should not be ignored in a human health assessment.

## 13 LANDSCAPE FEATURES

The Giant Mine lease area borders the shore of Back Bay within the Yellowknife Bay of Great Slave Lake. The landscape within the lease area is composed of exposed rock and rock outcrops. In low lying areas, specifically where Baker Creek drains into Back Bay, there is wetland habitat which is sheltered by a break water berm.

### 13.1 Vegetation

Much of the vegetation within the lease area has been disturbed. However, certain areas within the lease area still support a variety of plant species. Areas with deeper soil support a mesic forest (Jacques Whitford Environment Limited 2003). Dominant plant species in the mesic forest community include white spruce, paper birch, willow, green alder, Labrador tea, dwarf scouring rush and glow moss.

#### Landscape and Vegetation

- The landscape and vegetation has been disturbed by industrial activity.
- The naturally occurring vegetation and landscape is typical of the Yellowknife area.

The southern border of the lease area contains scrub forest (Jacques Whitford Environment Limited 2003). Common species found in the scrub forest community are common juniper and paper birch and less frequently, prickly rose, Labrador tea and green alder. Bearberry tends to be widespread.

Rock outcrops lack the soil, water retention and nutrients and, as a result, support few plant species. Bearberry, common juniper and grasses tend to dominate these plant communities.

## 14 FISH AND WILDLIFE

### 14.1 Fish Species

Common fish species in the area are:

- northern pike (*Esox lucius*)
- lake whitefish (*Coregonus clupeaformis*)
- walleye (*Stizostedion vitreum*)
- longnose sucker (*Catostomus catostomus*)
- white sucker (*Catostomus commersoni*)
- arctic grayling (*Thymallus arcticus*)

### Fish and Wildlife

- Fish present in Back Bay and Baker Creek are common to the Yellowknife area.
- Grayling have returned to Baker Creek since mining has ceased.
- Wildlife at the site is typical of the Yellowknife area.

Recently, Arctic grayling have begun to re-use Baker Creek. The Government of the Northwest Territories have regulated the Arctic grayling catches in Baker Creek, requiring anglers to release any grayling caught within 100 m of the mouth of the creek.

### 14.2 Wildlife

There is a variety of wildlife found near Yellowknife and the Giant Mine lease area including: snowshoe hare, lynx, moose, red fox, spruce grouse, gray jays, red squirrels and a variety of mustelids (weasel family). Although the distribution area of these animals includes the Yellowknife area, many animals are cautious and will not be readily noticed. Nonetheless, there is a variety of birds and mammals which may be seen in the vicinity of the Giant Mine lease area.

## **VALUES COMPONENT**

### **15 PUBLIC MEETING #1**

The first public meeting was held on Wednesday, December 7, 2005 in the Lower Boardroom, City Hall. Thirteen (13) residents attended the meeting. Members of the public were invited to attend this visioning session. Feedback received during this meeting is contained in Section 15.1. In addition to the public meeting, the public was invited to submit responses to a questionnaire that was available on the City's website. Key stakeholder interviews were also undertaken and a list of these stakeholders is contained in **Appendix A**.

#### **15.1 Stakeholder Interviews & Public Feedback**

All stakeholder interviews and public feedback were centered on four main questions:

- ★ Think about this entire lease area; the water, the land, the history. What ideas do you have for the future of this site?
- ★ What is special about this part of our community?
- ★ What challenges are there in developing this site?
- ★ As the city begins to set our vision for this site, what are your top three pieces of advice?

Responses are summarized below and will form part of the policy direction for the site.

#### **Question #1:**

**Think about this entire lease area; the water, the land, the history. What ideas do you have for the future of this site?**

As part of the visioning project for the Giant Mine Waterfront and lease area, residents were asked for their ideas on the future of the site. Many respondents felt this would be a suitable location for a waterfront

#### **Key Themes**

- Promote tourism
- Capture local heritage and history
- Incorporate residential growth
- Enhance water access & boating uses
- Geopark designation

park that allowed for year-round activities and public access. A number of respondents felt this is a good opportunity to promote tourism. Suggestions for tourist endeavours included a boardwalk, B&Bs (use the existing Guest House), hotels, RV and camping park, picnic areas, cafes and restaurants, playground, benches, a sandy beach and wading and grass areas. Additional suggestions included a live outdoor theatre area, geological walking trails, a lapidary shop, fishing pro-shop, converting old buildings into stores, arts and crafts workshops and a location for the Aurora Arts Society. One participant suggested incorporating a historical complex into the site that would include a Dene Historical display and a Canol Pipeline Project museum including a tribute to African American soldiers who worked on the pipeline and aviation.

Some respondents felt the historical links to the area could be captured in an historical and information centre. A NWT Mining Museum and Interpretive Centre was also suggested. Preserving the natural geology of the area is also very important to many respondents. Blasting should be kept to a minimum so as to preserve the natural geology of the area. Furthermore, develop the area where as much of the natural characteristics of the landscape are preserved and incorporating the flow and style of the original buildings is important to participants. The protection of Baker Creek is also an issue that needs to be addressed.

While some participants felt commercial and tourist activities would be suitable for the area, a number of respondents felt that residential growth would be an appropriate use for the area. Many respondents felt that a residential neighbourhood could address security issues at the site. Residential neighbourhoods were suggested with the following considerations: set housing back



from the water, limited to single family housing, housing ought to be small – set development controls and focus more on multi-dwelling units. A suggested name for a new residential area was Gold Town Subdivision. Another participant felt that residential use should have zoning requirements that deals with the maintenance of certain historical and/or heritage components of the site and building guidelines to allow new buildings to fit in with the heritage theme.

A mixed land use plan was considered a good approach by some participants. It was suggested that small houses with businesses and retail attached could fit the existing vernacular. Uses should be mixed and housing and building should be clustered which could promote the village atmosphere and make the development more green and sustainable. Density could also be increased by building out into the water. A participant thought that this would be an ideal place for float homes.

In addition to zoning, a number of respondents felt this is an opportunity to fulfill several requests for seasonal boat moorage, a better dock, marina, yacht club, a year round clubhouse and float plane parking. Suggestions were made to charge people for boat and plane storage in order to generate income so that residents will not have to "sink" tax dollars into the area. The need for a breakwater along the two natural reefs to increase usage of a water park was also suggested.

**Question #2:**

**What is special about this part of our community?**

When asked what is special about this part of our community many respondents spoke of the history. Respondents felt it has a lot of memories for many local people and that we need to remember the history and heritage of the old residents. This is one of three gold mines that helped propel the development of Yellowknife itself. Some residents feel that Yellowknife does not have a historic area or a tourist focal point and that this could be a good opportunity to create one. It was noted that there are other buildings in the Yellowknife area that need to be moved. It was suggested that some of these buildings could be brought to the Giant Mine site to be restored and reconditioned. Respondents felt that a historic area would be good for tourism and public education.





In addition to the history of the area, many respondents felt that the scenery and views of the area are special. Respondents identified the accessibility to water as being special and that this is one of the last areas of available public shoreline in the city. One

**Key Themes**

- Local history and heritage
- Scenery and views
- Location
- Accessibility to water
- Geology

participant noted the excellent bird-watching and spectacular views from atop the rocks. Additionally, some people felt that it is environmentally cleaner than other areas in the immediate vicinity.

The geology of the area is a special component for many respondents. It was noted that there are unique world-class Pillow Basalts, Breccias and Shear zones in this area. Incorporating the geology of the area into development is preferred by many.

Access to Yellowknife Bay and the location of the site are favourite features amongst respondents. Respondents noted that the site is “near and dear” and is in a relatively protected area. Logistically, the site is in close proximity to Yellowknife and on the way to the Ingraham Trail. There is enough space for the site to grow, the parking is good and traffic volumes are low. Lake, road and walking trail access are also drawing features of this area.

**Question #3:  
What challenges are there in developing this site?**

When asked about the challenges in developing this site, respondents identified boating and boating related issues. Many respondents expressed their concern over boat storage pressures, the increasing size of boats, the deterioration of docks, additional boat storage, increase in activity (conflict of water use), north and south shorelines of the boatyard and additional shoreline. Respondents feel that addressing these issues along with working



with the Department of Fisheries and Oceans for breakwaters will be a challenge.

Political issues were raised as challenges and include the present remediation efforts by the federal government in cleaning up this area, land claim issues, organization of the Municipal Council and City Administration and the Department of Transportation's plans for moving the highway. Additionally time constraints for acquiring leases for the land and ownership issues could be a challenge.

### Key Themes

- Boating issues
- Political matters
- Land ownership
- Environmental concerns
- Infrastructure capacity

Environmental challenges were also raised and included public acceptance of an area that is considered a contaminated site, clean-up costs, protecting Baker Creek, environmental safeguard for residential development, exposure to North winds, the topography of the area, the integrity of the rock, hydrocarbon contamination and a larger degree of site remediation would need to occur for residential development. Some residents also felt that compatibility between development and Giant Mine clean-up activities could be a challenge.

Infrastructure challenges were identified and included water and sewage systems and a lack of piped services. Vandalism and security are issues for some respondents. Location was a challenge for a participant who felt it would be difficult for some residents to access the area without transportation and that it may be better to keep some services and commercial activities downtown.

#### **Question #4:**

**As the city begins to set our vision for this site, what are your top three pieces of advice?**

Respondents had a variety of advice for the vision of this site when going forward. Common themes included public access, tourism and planning.

Respondents felt it is important that as many people use this site as possible. Some respondents felt that the area should be accessible to everyone and not a select few.

Continued development of the marina and museum were highlighted as was saving the old character of the site by reusing old buildings for various tourist related businesses. A number of respondents supported the idea of creating a tourist-oriented area which could include an interpretive centre for mining, geology and mineral exploration. Incorporate tourist endeavours such as artist workshops, businesses, hospitality into the development plans while incorporating the history and legacy of the site. Refrain from blasting away the topography of the area and incorporate the natural environment into the design.

Sustainable planning was another common theme amongst respondents whether they were referring to residential use, a historical area, parks, trails or open planning. Thinking about the long-term use of the area was advised. A respondent recommended that we integrate the Giant Mine

### Key Themes

- Encourage public access
- Promote tourism
- Preserve history and heritage
- Sustainable planning
- Think creatively

Waterfront & Town Site visioning project with other city projects. While continuing with visioning and planning for the site, we were also reminded to keep a positive relationship with the Yellowknife Dene and possibly negotiate a deal with the Dene to be partners in the redevelopment.

Advice on residential development was varied. There were participants who favoured residential growth and supported a new subdivision. Some respondents who support residential growth do not want the Niven Lake Subdivision to continue to be extended to the town site lease because residents like the feeling of being out of town. There were other respondents who do not want to see the area turned into another subdivision and suggested looking for interesting ideas beyond a subdivision. Mixed-use planning and zoning was an alternative suggestion from many participants.

### Questions

Two questions emerged out of this exercise:

1. What is the cost difference in remediating the site to residential versus industrial? And is this the best use of public funds?
2. Where is the City in the Land Claim Process?

## 16 PUBLIC MEETING #2

The second public meeting was held on Wednesday May 24, 2006 at the PSAV room in the Multiplex. Seventeen (17) people attended. Members of the public were invited to attend this public presentation. Feedback received during this meeting is contained in Section 15.1. In addition to the public meeting, the public was invited to submit feedback on the presentation through a form that was available on the City's website and at the meeting. A copy of the draft report was available on the City's website.

### 16.1 Public Feedback on Draft Report

Public feedback was centered on four main questions:

- ★ Does the plan help promote public accessibility to the area?
- ★ What do you like about the plan?
- ★ What did we miss?
- ★ Additional Comments

Responses are summarized below.

|  |
|--|
| <b>Question #1: Does the plan help promote public accessibility to the area?</b> |
|--|

Most people felt the plan promoted public accessibility to the area. They recommended that there is a need to develop high density, but only in the area of current housing and preferably with commercial intermixed and keeping vehicular traffic minimized. They

#### Key Themes

- Plan promotes public accessibility
- High density residential
- Mixed use
- Plan the area in a manner that preserves ecosystems
- Use trail network to help direct traffic

related the idea to a "European Village concept."

While residents do feel that the public accessibility has been achieved, some suggest green space lake access be located south or lakeside of existing road and the area

between land and lake be designated as "wetland wildlife preserve."

People also wanted to ensure that the area does not get overcrowded and that boardwalks or pathways are used to direct non motorized traffic.

**Question #2: What do you like about the plan?**

**Key Themes**

- Heritage and Recreation Priorities
- Mutli-Uses incorporated
- Historic Importance Recognized

Residents were happy to see that heritage and recreation are priorities for the area, followed by tourism. Others expressed positive feedback on the mixed-use aspect of the site and acknowledged that consideration was taken to incorporate various

uses for the site, recognizing historic importance and potential for tourism and recreation.

**Question #3: What did we miss?**

**Key Themes**

- Aircraft parking area
- Promote aviation tourism
- Break water
- Expand lease area
- NWT Mining Heritage current site use
- Limited residential potential
- RV park is a better answer

During this second public meeting residents expressed the concern that itinerant aircraft parking area and dock in needed to promote aviation tourism. The requirement for a breakwater was cited.

Others felt that the City should consider expanding lease "A" shaft area pit across road and area NW of existing lease up to Mine site.

Residents advised that the area around the parking lot needs to allow for NWT Mining Heritage activities, where outdoor displays are currently being established. They suggested that a North-South line from east side of parking lot would help designated residential from heritage activities.

However, some respondents felt that the site offered very limited residential potential land that an RV park may be better answer.

#### Question #4: Additional Comments

During the second public meeting, there was a stronger sense of proceeding with the development as soon as possible. Some residents encouraged the City to "get the land" and speed up development so it occurs prior to 2019.

Many people at the public meeting encouraged the City to get people living out there now, such as a caretaker. This sentiment was expressed due to the high level of vandalism occurring on site.

Another person suggested that there needs to be a more detailed review by the City to determine which buildings to save. Two of the houses identified (#14 and 19) have since experienced water damage/vandalism. The City may decide other buildings are better suited to save.

Consultation with geologists was recommended in order to identify significant rock outcrops for preservation and use in walking trail maps and geologic history (Geo-tourism potential).

During this second public meeting there was a higher level of interest in establishing the site immediately as an RV park.

Other suggestions include that there is a need for buffer zones between the potential geo-park and residential areas and that the site has potential for arts and crafts space.

#### Key Themes

- City should obtain land
- Start development immediately
- Need a caretaker on site immediately
- High level of vandalism on site
- More detailed building evaluation required
- Consultation with geologists to identify significant areas
- Break water
- Use site as an RV park
- Need buffer zones between areas
- Potential to satisfy arts and crafts space needs

#### Questions we were asked

1. How long is the lease for and who is the lease with?
2. How wide is the set back to the water?
3. Where is the area for heritage?
4. Why is the parking area zoned residential?
5. Is residential the only option? Are there other options?
6. Is the heritage site going to be moved?
7. Is it feasible that there will be residential development (with respect to contamination)?
8. Is there a role for other levels of government (federal/territorial) to be included in the future development of this site?
9. Does the lease go back to MACA at the end of the 30 year City lease?

## **POLICY & ACTION COMPONENT**

### **17 BALANCING DEVELOPMENT AND ECOLOGY**

The Giant Mine lease area evokes many different emotions in the citizens of Yellowknife. Many people associate the lease area with the Gold Mine, stirring up ideas and notions of contamination and arsenic; undoubtedly, both the Giant Mine site and the lease area are connected through namesake, location and history. In addition to the mineral history, there is also a event that occurred at this mine site in 1992 with the Giant Mine strike and subsequent deaths of nine miners. It is a portion of our community's history that is still very much a part of our lives and recent memory.

Although arsenic has historically been a problem in and around the lease area, there is currently little evidence to suggest that arsenic poses a risk to human health. Moreover, the local geology results in naturally high background arsenic concentrations.

There are certainly signs that nature is rebounding. In recent years, Arctic grayling have returned to Baker Creek which attests to nature's resiliency and demonstrates that the creek is slowly returning to normal.

The Giant Mine lease area consists of a patchy framework of rock outcrops, plant communities and picturesque shoreline. The natural aesthetics result in a great potential for development. Yet, for development to proceed smoothly, a balance must be attained between historical concerns (such as arsenic contaminant), landscape features, vegetation and the use of Baker Creek by Arctic grayling.

In keeping with the direction set in the 2004 General Plan, the recommendations outlined in this report will provide a clear, relevant and evidence-based approach to planning and development responding to current and emerging issues and opportunities.

A goal of the City of Yellowknife is to facilitate taking control of the development agenda to achieve long-range public interests. As with the 2004 General Plan, the objective of the Giant Mine lease area and Waterfront Plan is to facilitate community sustainability, in addition to supporting creative and smart growth principles.

### **17.1 Ideas for Future Use, On-Site Challenges and Advice from the Community**

Many citizens and stakeholders who responded to the questionnaire regarding the Giant Mine lease area believed that waterfront development should be centered on recreational use and tourist facilities relating to the historic importance of the site. Facilities, such as the boat launch and cruising club allow for access to the water, as well as a possible marina or an area for float plane moorage.

Many respondents thought that the scenery, access to the waterfront and history added to the value of the Giant Mine lease area, however, possibility of conflicting water use (i.e. cruising club, boats, float planes, fishing) may have to be negotiated before development would proceed. Moreover, the construction of new and improved infrastructure, such as water and sewage systems, will present a unique challenge to planners and engineers in order to respect and protect the natural contours of the land.

Overall, the citizens of Yellowknife wish to embrace the history and physical character of the site, develop and maintain a positive relationship with the Yellowknife Dene First Nation, as well as allow for public-access to the waterfront.



## **18 VISION**

The vision, presented below, is a culmination of community wishes, key stakeholder interviews and public meetings. Weaved into the vision are planning and engineering principles that were supported during the General Plan process with respect to municipal growth, infrastructure investment and land demand.

There are four major goals that the Vision includes:

1. Residential and Commercial Development
2. Community Accessibility for Recreation & Tourism
3. Heritage Preservation
4. Natural Preservation & Environment

The vision for the lease area is presented in a phased approach to development. The assumption we make at the 2030 year mark, as indicated in Section 4.0, is that the City of Yellowknife has obtained title to this portion of land.

Specific land use planning components are evaluated with suggested objectives and policies which may assist Council in achieving the community's vision for the long term future of the lease area.

## **19 RESIDENTIAL AND COMMERCIAL DEVELOPMENT**

### **19.1 Considerations**

- The Akaitcho Interim Measures Agreement and the status of the land selection process must be acknowledged. As an overriding political and historic issue, this process will inevitably impact land development decisions within the municipal boundary.
- The General Plan by-law sets out the vision for the community in the short, medium and long term. Since the General Plan is a reflection of the public interest, the policies approved in the General Plan must be respected. Any changes to the Plan require a public hearing as well as council and Ministerial approval.
- The Waterfront Management Plan documents all policies relating to waterfront within Yellowknife. The Giant Mine lease area is located on the Back Bay waterfront and provides a venue for many water-based recreational activities. The Waterfront Management Plan is a representation of community interests and the long term protection and enhancement of the shoreline. Any changes to the Waterfront Management Plan, as a result of the Giant Mine lease area plan must be handled with sensitivity.
- The Integrated Parks, Trails and Open Space Study supported the recommendations made in the Waterfront Management Plan. While recognizing this area as an ecologically sensitive area, the study recommended a 'Mine-to-Mine' walkway.
- Consideration should be given to the Zoning By-law, which is a tool Council and administration have to designate particular uses on lands within Yellowknife. The lease area is currently zoned 'Growth Management'. Any changes resulting from this current study must be reflected in the zoning by-law through an amendment. A change in the by-law requires a public hearing as well as Council and Ministerial approval. A change in by-law must still conform to the General Plan; if it does not, then a General Plan Amendment is required.
- The public interest, as represented through the General Plan and Zoning By-law must be acknowledged. The personal interests for key groups and individuals who attended public meetings for the future of the Giant Mine lease area must also be respected. Finding the balance among the public interest, minority group

interests, sustainable planning principles, as well as the future of Yellowknife's land development is a balance that must be achieved through the recommendations of this study.

- As discussed in this report, the Giant Mine lease area is home to various types of structures. Where information was available from secondary sources it has been detailed, however, building (structural) details on the power plant, the "rec hall", cruising club and pump house infrastructure was not available at the time of this report.

The mixed use residential/commercial/recreation vision detailed in this report would assume that all structures, except those identified in the policy section as potential heritage buildings, would require demolition and land remediated to a level that allows for human occupation.

Additional consultation will be required with the cruising club to investigate the structural integrity of the building they are currently using, as well as any pending lease negotiations.

## **19.2 Evaluation and Response**

The General Plan sets out future land uses within Yellowknife and has earmarked the Giant Mine lease area for waterfront recreational development. This area of Yellowknife has not been set aside for residential development within the next 15 – 20 years. In addition, Council, through the zoning by-law has designated this area as Growth Management. Within the Growth Management Zone the only permitted uses are parks, recreation and public or quasi-public use and public utility and structures. The purpose of this zone is to protect undeveloped areas, such as the lease area, from premature subdivision and development. The General Plan is consistent with the Waterfront Management Plan and the Integrated Parks, Trails and Open Space Study.

The current political situation in the Northwest Territories has placed the City in a challenging position with respect to land development. The land selection process by the Akaitcho is currently underway. Of the land requested by the City from the Territorial Government, only about 50% was transferred. As of February 2006, the Department of Municipal and Community Affairs approved transfer of 601 hectares of land of which 148 hectares were previously under lease. A portion of Tin Can Hill (the

next identified area for residential development) is included in this transfer.

Issues such as development pressure, housing needs and consistency with the General Plan come into question when land within the municipal boundary may not be City-owned. While the City has the right to zone the land, they cannot dispose of land to developers if they do not have title.

Assuming that the City obtains title to the Giant Mine lease area in 2030 and the area is remediated to residential standards, the site could provide a community-supported residential/commercial area in the long term. Caution must be taken to ensure that commercial development does not detract business from the City's commercial core.

One of the reasons for bringing commercial and residential uses together in a mainly recreational area is to increase activity, use of public spaces and safety on the site. The goal is to allow for recreation and heritage activities within the area in addition to residential and commercial uses.

By permitting varied uses, the lease area can be developed as a place with a renewed sense of community and improved safety by promoting varied uses throughout the day. Ensuring different users use the same space at the same times of the day help to develop a sense of safety and community. These different activities can all occur at the same time, in the same place, allowing for people to meet and develop relationships.

### **19.3 Objectives**

Acknowledge that the Giant Mine lease area has been protected from development and premature subdivision for the next 15 – 20 years as per the 2004 General Plan. Also acknowledge that the General Plan will be reviewed in 2009 at which time the Giant Mine lease area should be considered for residential and commercial development. There is a need to respect the contours of the land and the innovative development techniques that can be learned from the current lease area as the City considers this site for long-term residential development.

## **19.4 Policies**

1. Promote the remediation of the site to residential standards.
2. Develop and maintain a positive relationship with the Yellowknives Dene.
3. In the future, allow commercial uses that support tourism in addition to local residential community.
4. Maintain innovative development that respects the natural contours of the land and the views of the water.
5. Maintain this site as relatively protected from the built-up urban center of Yellowknife.
6. Acknowledge and protect the geological history on the site.
7. Avoid further anthropogenic sources of arsenic.
8. Ensure protection of human health.
9. In the 2009 General Plan Review, consider the Giant Mine lease area for residential and commercial development.
10. Before developing the Giant Mine lease area, complete the currently identified residential phasing as outlined in the 2004 General Plan, specifically to:
  - a. Promote the completion of residential projects in areas presently under development within Yellowknife.
  - b. Develop new residential areas as identified in the General Plan.
  - c. Determine if residential development will occur along Yellowknife Bay South, towards Negus Point area south of Tin Can Hill and extending to the west shore of Great Slave Lake.

## **19.5 Specific Proposals**

A map of the specific proposals outlined below is located in Appendix K.

1. Residential and Commercial development should only be considered for this site after 2019, unless the City is unable to develop enough of Tin Can Hill and Yellowknife Bay South due to land tenure or remediation concerns.
2. Removal of all structures unless identified by Council through recommendation of the Heritage Committee as designated heritage buildings. Potential buildings to be designated were described in Section 8.2.
3. Undertake additional consultation with the cruising club to investigate the structural integrity of the building they are currently using and future plans including lease negotiations.

4. Acknowledge that there is a 30 year lease which expires in 2030. The City should work towards obtaining title to the lease area.
5. Create a development scheme for this area which provides detailed engineering and planning by-laws that respect the contours of the land and views of the water. All development on this site will avoid the 'blast and fill' approach and will maintain a treed buffer on the southeast and northeast portions of the lease.
6. Any future residential development planning must consider the feasibility of connections to the bus route, fire response time and other municipal services such as water/wastewater provisions, garbage pick up, etc. and the impact of the provision of services will have on City operational and capital budgets, in addition to taxes.
7. Review the Waterfront Management Plan, General Plan and Integrated Parks, Trails and Open Space Study in order to develop the lease area in a manner that respects the public interest reflected in these plans.
8. Detailed by-law (zoning and general plan if needed) amendments should accompany the development scheme. By-law amendments should permit the City to implement the policies and specific proposals detailed in this report.

## **20 COMMUNITY ACCESSIBILITY FOR RECREATION & TOURISM**

### **20.1 Considerations**

- The use of the lease area for promotion of tourism and local heritage was a consistent message heard at public meetings and interviews. However, specific feedback cautioned that promoting tourism and heritage without giving residents and tourists a 'reason' for making the trip to the site may result in an under-used portion of the community.
- Enhanced motorized and non-motorized boat use of the waterfront, as well as promotion of waterfront activities, was a message delivered by public and through the City's Waterfront Management Plan.
- The creation of a publicly accessible waterfront remains an important criterion for all waterfront development in Yellowknife. This criterion was voiced repeatedly during consultations, not only for the lease area but this message was delivered during previous City consultations for parks, trails and open space planning.
- Creation of a trail network that allows for winter and summer uses, as well as vehicular and non-vehicular (non-motorized) use is a key consideration of this study. Connecting to trails from the Ski Club as well as allowing for safe snowmobile access to Great Slave Lake will improve the integration of the City's current trail system.
- Embracing the contours of the land by using the topography for outdoor recreational use is consistent with the public request for an approach to development in the City that avoids the 'blast and fill' method.

### **20.2 Evaluation and Response**

The promotion of the site for recreation and tourism is consistent with the City's current policies, plans and by-laws. The interface of water and land provides a picturesque location of activities such as hiking, jogging, snowshoeing, rock climbing, walking, cycling, skiing, etc. A key challenge will be the integration of all these activities within the same space in a safe and effective manner. One approach to this is to continue to provide a parking area (in current parking location) for day users of the City dock and other waterfront amenities. By having a dedicated snowmobile access point close to the parking lot, the City can also ensure that snowmobiles are only using the lease area for

lake access, not for trail recreation.

Looking 20 years into the future, the lease area will have a wide range of users. Careful planning needs to be done to ensure that people who reside in this area feel a sense of community while they are sharing the area with tourists and other members of the Yellowknife community. Proper zoning and regulations respecting private lots and public areas must be clarified and written into by-law during the development scheme phase of the project.

In particular, the provision for a setback from the waterfront for both a multi-use trail and a day-use area along the waterfront needs to be embedded within the by-law. Residential development within the lease area should not be permitted along the water, but, rather, only on rocky terrain of the former 'town site'.

Some of the main ideas stemming from public consultation for this site centered on recreational waterfront development with associated tourist facilities that helped convey the historic importance of the area. Provision of facilities for boats and float planes would be ideal; mixed-uses that allow for some residential development was suggested as a means to address on-site security.

With respect to tourism, in previous consultation with local providers of tourist activities, it was advised that if the City creates places of interests for local residents first, then visitors will most likely use these, but the caution was to not create tourist attractions only for visitors. For the most part, we were advised that tourists are out on the land undertaking activities such as aurora borealis viewings, dog sledding, etc.

### **20.3 Objectives**

Meet the community's desire for advancing waterfront recreational uses in addition to embracing the natural topography of the site for other passive and active recreation facilities. Implement the community's request for greater public access to the waterfront in order to promote local activity which will inevitably result in a tourist attraction area.



## **20.4 Policies**

1. Promote the continued use of the site for recreational sailing.
2. Support the desire for a publicly accessible waterfront.
3. The City will plan for a range of recreational and tourist activities on this site.
4. Promote all-season recreational opportunities.
5. Create this area of our community as a day-use destination for summer and winter.
6. Integrate, in a safe and efficient manner, the needs of future residents of this area and the needs of public users of this site.

## **20.5 Specific Proposals**

A map of the specific proposals outlined below is located in Appendix L.

1. Rezone the shoreline to allow for public access and passive recreation. At a minimum the rezoning should include a 50m setback to be further defined by a site plan design during the development scheme process. The appropriate zone should also be determined during the development scheme process.
2. Undertake a summer boat moorage usage survey prior to expanding the boat use and storage on the site.
3. Investigate the environmental impact and feasibility of a marina prior to design and construction.
4. Investigate the environmental impact and feasibility of a break wall prior to design and construction.
5. Designate public parking adjacent to the access road.
6. As part of the overall development scheme, require that the natural contours of the lease area are maintained to create a trail network with look-outs and rest areas. This trail network should be developed in consideration of future residential development and must also provide for a connection to the Ski Club trails.
7. Implement a signage program on the lease area that identifies pedestrian and other vehicular traffic circulation patterns and lake access points. This signage program will include specific proposals in the Heritage section, below.
8. Study the topography of existing contours prior to designating a sliding hill on the site.
9. Allow for snowmobile access at the south end of the boat launch area.

10. Designate the western rock face near the access road as a rock climbing facility.
11. Create a set of guidelines for recreational use of the area.

## **21 HERITAGE**

### **21.1 Considerations**

- The idea of heritage preservation on this site means many things to different people. The mining heritage in addition to the geological and community history of the site is all part of the 'story' of the lease area. All perspectives of the history need to be acknowledged.
- Capturing local heritage and history was a common response from the public when asked for ideas for the site. Some responses included a comprehensive presentation of history that included a Dene Historical display in addition to more modern cultural components such as arts and crafts from local groups.
- Throughout all consultation and research, there was strong message: that the lease area is one of the last places in Yellowknife where we have a living history. The old homes, the road network, the land use planning history and even just a 'feeling' of a community that once was. These factors all evoke a feeling of nostalgia during a walkabout of the area. The preservation of this sense of community and history is something that future development should strive to achieve.

### **21.2 Evaluation and Response**

The preservation of heritage and the unique history of this site is already in progress. Numerous studies of the buildings, the history and the changes in the community have been undertaken. The Mining Heritage Society, in addition to the Great Slave Cruising Club, is an example of a group that provides a living history and are proponents of education of the heritage issues on this site.

A future residential and commercial subdivision in this area can provide the 'eyes on the street' for heritage displays and information centres. In order to separate residential traffic from visitor traffic, the development scheme should dedicate the area near the access road, including the existing parking lot, for public use.

Designated heritage buildings which will be located throughout the lease area will form part of the trail network where visitors will be welcomed. With respect to designating

the buildings as heritage buildings there is a role for the City's Heritage Committee. One of the roles of this committee is to make recommendations to Council on the designation of heritage buildings. As part of the specific proposals for this project, it is recommended that the Committee consider the heritage designation of the four (4) houses in the lease area as previously discussed in Section 9.0

During the public consultation phase, we heard that developing the site for the sole purpose of heritage preservation is not enough to attract people. By integrating a heritage component into other uses such as recreation, tourism, commercial uses as well as residential uses, the subdivision will provide human activity throughout the day and evening which contribute to people enjoying and learning about the heritage of this site.

### **21.3 Objectives**

Acknowledgement and integration of the heritage aspects of this lease area is a key component of the future development of this area. Working with key community groups and designating portions of the site for vehicular access to heritage attractions is important in balancing residents' needs with visitors to the area. Providing historic education and walking trails with designated heritage buildings allow for a more varied education about heritage on the site.

### **21.4 Policies**

1. Support the inclusion of the NWT Mining Museum and Interpretive Centre within a future development scheme of the area.
2. Work with the Heritage Committee to make recommendation to Council on the designation of a few key structures that will form part of the walking trail. These structures will serve to enhance the heritage educational experience of the site.

### **21.5 Specific Proposals**

A map of the specific proposals outlined below is located in Appendix M.

1. Rezone a portion of the lease area near the access road to allow for museums, interpretive centres, commercial and public uses. The appropriate zone should be determined in the development scheme process.
2. Undertake a traffic study for the portion of the site that includes the Great Slave

- Cruising Club leased area (currently under negotiation) and the Mining Heritage Site. Users of this site will include the public as well as members of the Cruising Club. Connecting the Ski Club trails to the lease area will occur near the heritage area of the site. Proper alignment for the trail, in consideration of the traffic circulation described above, is important for safety on site.
3. In consultation with the Heritage Committee, identify key buildings as heritage buildings and remove all other structures from the lease area. Houses # 10, 11, 14, 19 are recommended for heritage designation.
  4. Build model of existing structures and uses to be displayed in a NWT Mining Museum and Interpretive Centre.

## **22 NATURAL PRESERVATION & ENVIRONMENT**

### **22.1 Considerations**

- The use of creative planning and engineering tools was the primary consideration for achieving natural preservation and protecting the environment.
- Develop a comprehensive understanding of the geology and soils within the lease area. Particularly the presence of arsenic as well as other contaminants and the potential human health risk.
- Groundwater and surface water quality, including Baker Creek, Back Bay and Yellowknife Bay, is a key determinant in understanding the ecosystem, the levels of contaminant and the resulting effect on humans as well as fish and vegetation.
- Protecting the existing ecosystem which includes working to reduce any further anthropogenic sources of contamination.

### **22.2 Evaluation and Response**

There are two major issues the City is dealing with in respect to the natural preservation and environmental issues on this site. The first is dealing with human activities in the past and the consequences of those activities today. The second is embracing and protecting what exists today, i.e. the terrain, the waterfront, the ecological diversity of the site and the interface of water and land.

Analysis of the soil composition of the lease area shows deep soils that support a diverse plant community. These areas of soil may be favourable for development; however, proceeding with development will be detrimental to the plant communities.

With respect to arsenic contamination in the lease area, the presence of arsenic has increased due to human activities related to the use of waste-rock for road construction. However, even though arsenic concentrations are elevated above background levels there was no areas identified above the ENR remediated levels. Site specific Risk Assessments tell us that the known arsenic contamination does not pose a serious risk to human health. Notwithstanding the limited risk, arsenic and its prevalence in the local ecosystem should still be monitored to verify that it does not become a risk to human health.

With respect to ground water, arsenic concentrations tend to be naturally high in the groundwater due to arsenopyrite in the bedrock.

Water quality data shows that arsenic concentration has increased due to anthropogenic inputs. However, with the cessation of milling activities and the impending Abandonment and Restoration of Giant Mine, artificial sources of arsenic will be managed. Naturally occurring arsenic will be present.

High arsenic concentrations in the sediments of Baker Creek and Back Bay have resulted in the reduced bioavailability of arsenic. Since the arsenic is bound to the sediments, it is not in a toxic form.

With respect to arsenic concentration in fish, certain species of fish, depending on foraging habits, will have higher arsenic levels than other species of fish, but currently there is little evidence to suggest that consuming fish will lead to adverse health effects. Although the consumption of fish caught in Back Bay does not seem to pose risk to human health, their consumption should be considered in any future health risk assessment.

Regarding vegetation, the mosaic of plant life, rock outcrops and shoreline contributes to the aesthetics intrinsic to the landscape in and around the lease area. Undoubtedly, this noted vegetation increases the desire for people to live in and therefore, develop this part of the community. Much of the plant community is dominated by areas of disturbed ground. The remaining vegetative communities may be sensitive to disturbance. Should the remaining plant communities be considered valuable, their protection may need consideration when developing the lease area.

### **22.3 Objectives**

The future development of the lease area into a place where people live, work and continue to recreate, must be done in a manner that puts health and safety at the forefront. Understanding the history of the site and resulting contamination issues will help to avoid future anthropogenic sources of contamination. In addition to protecting human health and safety, an acknowledgement of the importance of the geology, water, fish and wildlife preservation of the area needs to be considered in balance of other

objectives.

## **22.4 Policies**

1. Protection of Baker Creek.
2. Protection of natural landscape, vegetation and environment, in balance with building a future residential/commercial area.
3. Ensure that any future development in the area does not block the passage of spawning fish through Baker Creek. This policy may have an impact on a potential marina in the lease area.
4. Ensure that any future development does not use Giant Mine waste-rock, containing elevated levels of Arsenic, in construction.
5. As part of the signage program for the entire lease area, implement a component that identifies natural and environmental landmarks.

## **22.5 Specific Proposals**

1. Undertake future study on the UNESCO geopark<sup>5</sup> designation to determine the suitability of this designation for the lease area.
2. Develop design criteria for inclusion in the development scheme (by by-law) that creates a community which fits into the natural landscape and has limited impact on the ecological and geological diversity of the area.
3. Undertake an engineering study to determine an appropriate water/wastewater system that maintains the natural landscape.

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<sup>5</sup> A UNESCO Geopark:

- Is a territory encompassing one or more sites of scientific importance, not only for geological reasons but also by virtue of its archaeological, ecological or cultural value;
- Will have a management plan designed to foster socio-economic development that is sustainable (most likely to be based on geotourism);
- Will demonstrate methods for conserving and enhancing geological heritage and provide means for teaching geoscientific disciplines and broader environmental issues;
- Will be proposed by public authorities, local communities and private interests acting together;
- Will be part of a global network which will demonstrate and share best practices with respect to Earth heritage conservation and its integration into sustainable development strategies.

(Source: [www.unesco.org](http://www.unesco.org))



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## **APPENDIX A**

### **Major Stakeholders List for Consultation**

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| Organization  | Contact Name  | Other people in the organization to talk to                        | Position                     | Tel      | Email   | Fax      |
|---|---|--|------------------------------|----------|---|----------|
| NWT Mining & Heritage Society                             | Walt Humphries  | Mike Vaydik (Vice President, Manager NWT/Nunavut Chamber of Mines) | President                    | 873-5486 | <a href="mailto:walth@internorth.com">walth@internorth.com</a>  |          |
| Cruising Club   | Paul Latour   | Lorraine Seale   |                              | 669-4769 | Paul.Latour@EC.GC.CA, sealel@inac-ainc.gc.ca  |          |
| Giant Mine Working Group (INAC, MACA, City of YK members) | Greg Kehoe/Dennis Kefalas/Bill Mitchell/Ron Connell/Mark Cronk/John Stard |  |                              |          | <a href="http://nwt-tno.inac-ainc.gc.ca/giant/prl_e.html">http://nwt-tno.inac-ainc.gc.ca/giant/prl_e.html</a> |          |
| Band Manager for N'Dilo and Dettah                        | Rick Edjericon  |  | Band Manager N'Dilo & Dettah | 873-4307 | <a href="mailto:ricked@ykdene.com">ricked@ykdene.com</a>  | 873-5969 |
|   | Rachel Crapeau * contact first  |  | Land and Environment Manager | 669-9002 |   |          |
|   | Ted Tsetta  |  | YKDFN negotiator             | 766-3496 |   |          |
| YK Dene First Nation (Dettah)                             | Chief Peter Liske   |  | Chief                        | 873-4307 | <a href="mailto:Peter.liske@ykdene.com">Peter.liske@ykdene.com</a>  | 873-5969 |
| YK Dene First Nation (N'Dilo)                             | Chief Fred Sangris (key person to talk to)                                |  |                              | 873-8951 |   | 873-8545 |
|   | Sean Gorman   |  | Lands Officer                | 920-5611 | <a href="mailto:sgorman@yellowknife.ca">sgorman@yellowknife.ca</a>  |          |
| City of Yellowknife Heritage Committee                    | Dave Jones  |  | Chair                        | 920-5674 | <a href="mailto:djones@yellowknife.ca">djones@yellowknife.ca</a>  |          |

|                                  |                   |  |                                      |          |  |  |
|----------------------------------|-------------------|--|--------------------------------------|----------|--|--|
| City of Yellowknife<br>Directors | Max Hall          |  | City<br>Administrator                | 920-5632 | <a href="mailto:mhall@yellowknife.ca">mhall@yellowknife.ca</a>               |  |
|                                  | Greg Kehoe        |  | Director, Public<br>Works            | 920-5638 | <a href="mailto:gkehoe@yellowknife.ca">gkehoe@yellowknife.ca</a>             |  |
|                                  | Monte Christensen |  | Manager,<br>Planning and<br>Lands    | 920-5675 | <a href="mailto:mchristensen@yellowknife.ca">mchristensen@yellowknife.ca</a> |  |
|                                  | Dave Devana       |  | Director,<br>Corporate<br>Services   | 920-5666 | <a href="mailto:ddevana@yellowknife.ca">ddevana@yellowknife.ca</a>           |  |
|                                  | Dennis Marchiori  |  | Director of<br>Public Safety         | 920-5661 | <a href="mailto:dmarchiori@yellowknife.ca">dmarchiori@yellowknife.ca</a>     |  |
|                                  | Grant White       |  | Director,<br>Community<br>Services   | 920-5636 | <a href="mailto:gwhite@yellowknife.ca">gwhite@yellowknife.ca</a>             |  |
|                                  | Peter Neugebauer  |  | Director,<br>Economic<br>Development | 920-5660 | <a href="mailto:pneugebauer@yellowknife.ca">pneugebauer@yellowknife.ca</a>   |  |

|   |
|---|
|   |
| <b>Meeting Date</b>   |
| completed<br>November 1/05  |
| Completed<br>November 9/05  |
| Tarik to meet with<br>them  |
| called dec 1 -<br>public meeting<br>reminder  |
| left a message on<br>November 4, called<br>december 1 and<br>invited to public<br>meeting - left a<br>message |
|   |
| press release fax<br>on nov 1   |
| press release faxed<br>on nov 1   |
| November 25/05  |
| November 16/05  |



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**APPENDIX B**

**Questionnaire**

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# A Visioning Project for the Giant Mine Waterfront & Town Site

## SITE MAP



### Project Purpose

To develop an acceptable and suitable land and water use plan for the Giant Mine Lease area that promotes and enhances safe public accessibility to the area and the waterfront.

**Name:** \_\_\_\_\_

**Contact Information:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**On the following page are 4 questions. We are interested in your thoughts and ideas. Please respond by December 9, 2005. Thank you for your assistance!**

Fax or Email your response to Dillon Consulting Limited

Closing Date for Input: December 9, 2005

Fax: 867-873-3328

Email: [nnaidoo@dillon.ca](mailto:nnaidoo@dillon.ca)

Tel. 867-920-4555 ext. 30

## A Visioning Project for the Giant Mine Waterfront & Town Site

1. Think about this entire town site; the water, the land, the history. What ideas do you have for the future of this site?
2. What is special about this part of our community?
3. What challenges are there in developing this site?
4. As the City begins to set out a vision for this site, what are your top 3 pieces of advice?



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**APPENDIX C**

**Agendas & Minutes from Project Meetings**

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**GIANT MINE LAND/WASTE USE PLAN  
AGENDA – CONSULTATION METHODOLOGY MEETING  
CITY HALL  
FRIDAY OCTOBER 28, 2005 11 AM**

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**Distribution:**

Monte Christensen    City of Yellowknife  
Nalini Naidoo        Dillon Consulting

**Agenda Items:**

1. Consultation Methodology
2. Consultation Guiding Questions
3. Stakeholders
4. Press Release
5. Resources Required
6. Site Visit
7. Next Steps
  - a. Background Report outline
  - b. Set up interviews

*CC. Project Team Members, Dillon Consulting Limited*

**GIANT MINE LAND/WASTE USE PLAN  
AGENDA – CONSULTATION METHODOLOGY MEETING  
CITY HALL  
MONDAY OCTOBER 31, 2005 11 AM**

---

**Distribution:**

Monte Christensen    City of Yellowknife  
Nalini Naidoo        Dillon Consulting

**Agenda Items:**

1. Consultation Methodology
2. Consultation Guiding Questions
3. Stakeholders
4. Press Release
5. Resources Required
6. Site Visit
7. Next Steps
  - a. Background Report outline
  - b. Set up interviews

*CC. Project Team Members, Dillon Consulting Limited*



**City of Yellowknife**  
**Giant Mine Waterfront and**  
**Town site Lease Plan**



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**Briefing to Directors**

**DATE:** NOVEMBER 9, 2005  
**TO:** DIRECTORS  
**CC:** PROJECT FILE 055395 CORRESPONDANCE  
**FROM:** NALINI NAIDOO  
**SUBJECT:** BRIEFING TO DIRECTORS

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**Wednesday, November 9, 2005**  
**9:00am**  
**Yellowknife City Hall**

**Distribution:**

|                   |                                 |
|-------------------|---------------------------------|
| Max Hall          | City Administrator              |
| Grant White       | Director Community Services     |
| Greg Kehoe        | Director, Public Works          |
| Dennis Marchiori  | Director, Public Safety         |
| Dave Devana       | Director, Corporate Services    |
| Peter Neugebauer  | Director, Economic Development  |
| Monte Christensen | Manager, Planning & Lands       |
| Debbie Euchner    | City Clerk, City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting Limited       |

**Agenda Items:**

|    |                             |        |
|----|-----------------------------|--------|
| 1. | Project & Team Introduction | Nalini |
| 2. | Process & Products          | Nalini |
| 3. | Purpose of today's meeting  | Nalini |
| 4. | Feedback from Directors     | All    |
| 5. | Closing                     | Nalini |
| 6. | Other items?                | All    |

**Agenda**  
Tuesday November 29, 2005  
Giant Mine Town site/Waterfront Lease Area  
2:15 Javaroma

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**Distribution:**

|               |                                |
|---------------|--------------------------------|
| Fred Talen    | Ministry of Aboriginal Affairs |
| Nalini Naidoo | Dillon Consulting Limited      |

1. Weledeh/Akaitcho distinction
2. Traditional territory and management/mapping of traditional territory
3. politics/optics
4. What is the internal process that they will use for determining use of land and water?
5. What about existing land leases?
6. What about municipal zoning and regulatory controls – how do they mesh?



**City of Yellowknife**  
*A Visioning Project for the  
 Giant Mine Waterfront and  
 Town Site*



**Briefing to Directors**

**DATE:** JANUARY 11, 2006  
**TO:** DIRECTORS  
**CC:** PROJECT FILE 055395 CORRESPONDANCE  
**FROM:** NALINI NAIDOO  
**SUBJECT:** REVISION 1 A VISIONING PROJECT FOR THE GIANT MONE WATERFRONT AND TOWN SITE

**Wednesday, January 11, 2006**  
**9:00am**  
**Yellowknife City Hall**

**Distribution:**

|                   |                                 |
|-------------------|---------------------------------|
| Max Hall          | City Administrator              |
| Grant White       | Director Community Services     |
| Greg Kehoe        | Director, Public Works          |
| Dennis Marchiori  | Director, Public Safety         |
| Dave Devana       | Director, Corporate Services    |
| Peter Neugebauer  | Director, Economic Development  |
| Monte Christensen | Manager, Planning & Lands       |
| Debbie Euchner    | City Clerk, City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting Limited       |
| Tarik Dessouki    | Dillon Consulting Limited       |

**Agenda Items:**

|    |  |           |
|----|--|-----------|
| 1. | Team Introduction                        | Nalini    |
| 2. | Project Introduction – Review of purpose | Nalini    |
| 3. | Purpose of today’s meeting               | Nalini    |
| 4. | * Explain the documentation              |           |
| 5. | * Review of methodology                  |           |
| 6. | * Explanation of 2 options               |           |
| 7. | * Questions                              | Directors |
| 8. | Next Steps                               | Directors |

**GIANT MINE LAND/WASTE USE PLAN**  
**AGENDA – Revision 2 Report**  
**CITY HALL**  
**TUESDAY APRIL 11, 2006**  
**2:30PM**

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**Distribution:**

Monte Christensen    City of Yellowknife  
Nalini Naidoo        Dillon Consulting

**Agenda Items:**

1. Monte's Comments on Revision 2
2. Public Meeting
3. Next Steps

*CC. Project Team Members, Dillon Consulting Limited*

**GIANT MINE LAND/WASTE USE PLAN**  
**AGENDA – Revision 3 Report – Public Meeting**  
**CITY HALL**  
**FRIDAY MAY 26, 2006**  
**10AM**

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**Distribution:**

|                   |                     |
|-------------------|---------------------|
| Monte Christensen | City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting   |
| Gary Strong       | Dillon Consulting   |

**Agenda Items:**

1. Publics' comments on R3
2. Update on budget
3. Changes we would like to make (need approval from Monte)
4. Changes the City would like
5. Direction of vision, policies and proposals
6. Next Steps

*CC. Project Team Members, Dillon Consulting Limited*



**GIANT MINE LAND/WASTE USE PLAN  
MINUTES – CONSULTATION METHODOLOGY MEETING  
CITY HALL  
MONDAY OCTOBER 31, 2005 11 AM**

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**Attendance:**

|                   |                     |
|-------------------|---------------------|
| Monte Christensen | City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting   |
| Tarik Dessouki    | Dillon Consulting   |

**Agenda Items:**

- 1. Consultation Methodology**
  - a. December 7 booked for 7pm public meeting – lower boardroom
  - b. Monte reviewed the methodology and approved it
- 2. Consultation Guiding Questions**
  - a. Monte reviewed questions, provided recommended changes.
  - b. Nalini will make the changes and add a map to the questionnaire
  - c. A questionnaire will be available on the city's website, Nalini to contact the IT department.
- 3. Stakeholders**
  - a. Giant Mine working group – Nalini to send a note to Greg Kehoe on information that is needed (hydrology, soils, geology, natural resource attributes – if available, existing human use)
  - b. YK Dene First Nation – contact is Fred Sangris
  - c. Add DFO as a major stakeholder
  - d. Heritage Committee – Dillon to review all documentation prior to interviewing them.
  - e. Interview all directors at the same time – Wednesday November 9 – will confirm with Debbie on Monday
  - f. Mark Cronk contact for background – PWGSC 669-2433
- 4. Press Release**
  - a. Monte reviewed the press release, and made edits
  - b. Nalini to make the changes and send to Debbie for the newsletter (nov 4)
- 5. Resources Required**
  - a. Contour mapping available from Dennis Kefalas – Nalini to send email request
  - b. Angela to provide a copy of the lease agreement – Nalini to follow up
  - c. Monte to send the service contract to Dillon for signature
- 6. Site Visit**
  - a. Completed on Oct 31
- 7. Next Steps**
  - a. Background Report outline
    - i. Tarik to complete by November 4
  - b. Set up interviews
    - i. Nalini to set up interviews this week
  - c. Monte to provide report from Ann Peters
  - d. Monte to check on Bathymetric mapping
- 8. Other items**
  - a. Project estimated completed January/February 2006  
*Please any errors or omissions to Nalini Naidoo within 4 days.*

**GIANT MINE LAND/WASTE USE PLAN  
MINUTES – REVIEW OF DRAFT COMMENTS  
CITY HALL  
Tuesday February 14, 2006**

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**Attendance:**

|                   |                     |
|-------------------|---------------------|
| Monte Christensen | City of Yellowknife |
| Ben Petch         | City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting   |

**Agenda Items:**

- 1. Review of Table of Contents**
  - a. Nalini will provide Ben and Monte with an e-version of the Table of Contents.
  - b. Comments are requested back by Thursday by 9am
- 2. Comments on Draft Report**
  - a. Nalini went through all the comments provided that were “must haves”
  - b. There were three items that required discussion, as detailed below.
- 3. Additional consultation regarding the curling rink, power generator and utilidor**
  - a. Dillon request 1 additional day.
- 4. Direction to the Remediator**
  - a. Dillon is not in a position to provide direction to the remediator on the structures.
  - b. City of Yellowknife position is that the report will be the direction, and this is sufficient
- 5. Additional Mapping**
  - a. A key map will be created
  - b. A Ben had suggestions for the constraints map – Nalini will consider these ideas when developing the final mapping (continued discussion with Ben required).
- 6. Action Items**
  - a. Ben and Monte to provide feedback on Table of Contents by Thursday February 16 9am.
  - b. Monte to provide authorization (email is ok) to Nalini to proceed with consultation (#3 above)
  - c. Monte to decide if additional mapping should be undertaken (#5 above).
  - d. Please provide me with these decisions by Thursday February 16 so we can continue with the work.

Thanks!

*Please any errors or omissions to Nalini Naidoo within 4 days.*

**GIANT MINE LAND/WATE USE PLAN**  
**AGENDA – Revision 2 Report**  
**CITY HALL**  
**TUESDAY APRIL 11, 2006**  
**2:30PM**

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**Attendance:**

Monte Christensen    City of Yellowknife  
Nalini Naidoo        Dillon Consulting

**Items Discussed:**

**1. Monte's Comments on Revision 2**

- a. Monte provided Nalini with written comments on Revision 2. Monte agreed to hold onto the written comments until after the Directors' meeting on April 12/06. After that meeting the comments will be passed onto Nalini. Nalini reminded Monte that the process to update the Revision 2 report would only be done after the public meeting (according to the schedule/budget).

**2. Public Meeting**

- a. Monte advised Nalini that after the Directors' meeting on April 12/06 he would provide direction on the timing of the public meeting.

**3. Next Steps**

- a. Nalini will meet with Monte after the Directors' meeting.

*CC. Project Team Members, Dillon Consulting Limited*

**GIANT MINE LAND/WASTE USE PLAN  
MINUTES – Revision 3 Report – Public Meeting  
CITY HALL  
FRIDAY MAY 26, 2006  
10AM**

---

**Attendance:**

|                   |                     |
|-------------------|---------------------|
| Monte Christensen | City of Yellowknife |
| Nalini Naidoo     | Dillon Consulting   |
| Gary Strong       | Dillon Consulting   |

**Agenda Items:**

- 1. Publics' comments on R3 Report**
  - a. Nalini provided Monte with a summary of all comments received through the public feedback form.
  - b. Nalini will review all comments and compare them to the December feedback to assess if they are any major departures.
- 2. Update on budget**
  - a. There is budget to add in the last portion of comments from the public, but that is it.
- 3. Changes we would like to make (need approval from Monte)**
  - a. Dillon would like spend a few days revising the environmental section of the report to make it more relevant to the land use decision that need to be made.
- 4. Changes the City would like**
  - a. The City suggested a time line and implementation plan be development to accompany the plan. Dillon suggested that if an implementation plan is being developed, then short term adaptive reuse of existing buildings should be included in that plan.
  - b. Dillon's team of engineers would provide a more detailed review of selected building to be considered for reuse.
- 5. Direction of vision, policies and proposals**
  - a. No changes seem to be required, Nalini will confirm
- 6. Next Steps**
  - a. Monte will provide a go or no go decision on the following:
    - i. Dillon revising the environmental sections of the report (approx \$5000)
    - ii. Dillon to provide the City with an implementation plan (approx \$3200)
    - iii. Dillon to undertake additional assessment of buildings (approx \$5000)
  - b. Nalini also provided Monte with an example of a way to incorporate recreation, planning and landscape architecture techniques into the next stage of the plan.

- i. Monte to make a decision if he would like to proceed in this direction.
- ii. Nalini can prepare a proposal for Monte if the City wishes.
- c. Nalini will call Monte on Tuesday May 30/06 to confirm decisions.

***These minutes were prepared by Dillon Consulting Limited. Please report any errors or omissions to [nnaidoo@dillon.ca](mailto:nnaidoo@dillon.ca) within 3 business days.***

*CC. Project Team Members, Dillon Consulting Limited*

**Giant Mine Waterfront  
and Town Site  
Site Location Map**



Giant Mine Waterfront  
and Town Site (Lease Area)



Long Lake

Jackfish Lake

Frame Lake

Kam Lake

Back Bay

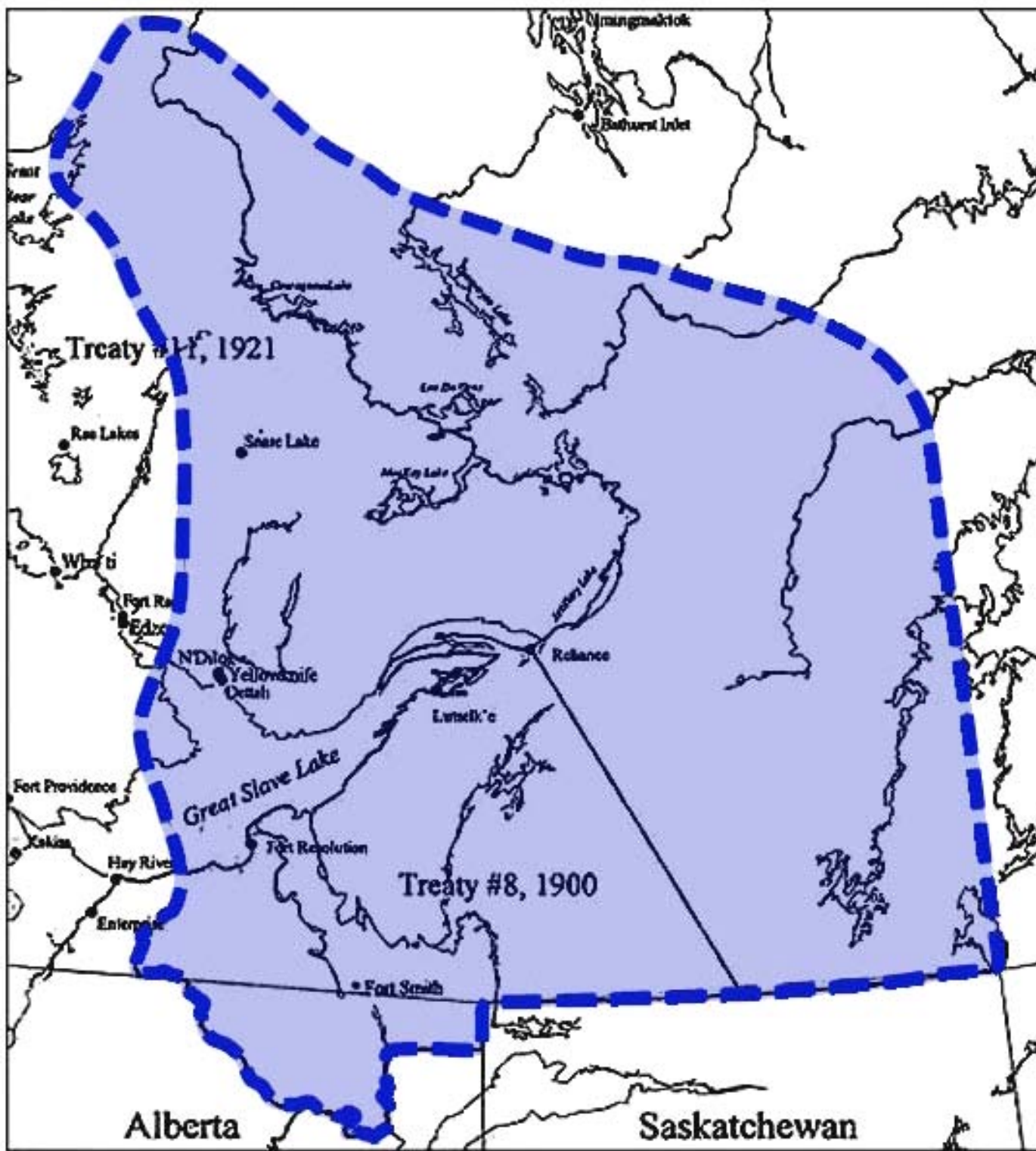


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**APPENDIX E**

**Akaiicho Boundary & Interim Measures Agreement**

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**Akaitcho territory  
as asserted by  
Akaitcho DFN**

**— — — — — Akaitcho territory  
Approx. 480,000 Km<sup>2</sup>**

**————— Treaty Boundary**

km 25 0 125 km

Alberta

Saskatchewan



## **INTERIM MEASURES AGREEMENT**

Among:

**THE AKAITCHO TERRITORY DENE FIRST NATIONS  
("the AKAITCHO DFN" )**

and

**HER MAJESTY THE QUEEN IN RIGHT OF CANADA  
("CANADA")**

and

**THE GOVERNMENT OF THE NORTHWEST TERRITORIES  
("the GNWT")**

(Together known as the "Parties")

### **BACKGROUND:**

1. The Crown entered into Treaty #8 with the ancestors of the Akaitcho DFN at Deninu Kue in 1900;
2. The ancestors of the Akaitcho DFN entered into Treaty #8 with the understanding that it was for as long as the sun shines, the rivers flow and the grass grows;
3. The Parties have entered into a Framework Agreement on July 25, 2000 to guide the negotiation of the Akaitcho agreement;
4. The Parties recognize that certain lands within Akaitcho DFN asserted territory are of environmental, cultural, economic and spiritual importance to the Akaitcho DFN.
5. The Parties have recognized that appropriate interim measures are necessary in order to advance negotiations.

## THE PARTIES AGREE AS FOLLOWS:

### 1. ACKNOWLEDGMENTS

In concluding this Interim Measures Agreement (herein after “this Agreement”), the Parties acknowledge the following principles that are the foundations of this Agreement:

- 1.1. Canada and the GNWT acknowledge that the Akaitcho DFN asserted their traditional territory in a map attached to the Framework Agreement.
- 1.2. The Akaitcho DFN have their own internal processes for determining the use of lands and water.
- 1.3. Canada and the GNWT have passed statutes and regulations relating to the occupation, use and disposition of land and resources which contain application mechanisms for various licences, permits, land leases and transfers.
- 1.4. The Akaitcho DFN agree to set up a process to pre-screen applications in a manner described in the Schedules to this Agreement.
- 1.5. The Parties anticipate that resources will be required to allow the Akaitcho DFN to implement a pre-screening process.
- 1.6. The pre-screening process, more fully described in the Schedules, will work as follows:
  - a) The Akaitcho DFN will have the earliest possible notice of applications for various licences, permits, land leases and transfers;
  - b) Canada and the GNWT will take steps to provide the Akaitcho DFN the available information necessary in order for the Akaitcho DFN to respond; and
  - c) The Akaitcho DFN will base their comments on the following grounds:
    - I. Environmental;
    - II. Cultural;
    - III. Spiritual; and
    - IV. Economic

## **2. ACTIVITIES COVERED BY THIS AGREEMENT**

### 2.1 Canada:

- a) Land Use Permits;
- b) Water Licences;
- c) Disposition of Surface Federal Crown Lands;
- d) Parks and Protected Areas; and
- e) Such other activities as the Parties may agree.

### 2.2 GNWT:

- a) Disposition of Commissioner=s Lands;
- b) Forest Management;
- c) Tourism Establishments and Outfitter Operations;
- d) Parks and Protected Areas; and
- e) Such other activities as the Parties may agree.

## **3. THE PRE-SCREENING PROCESS**

### 3.1 The Schedules, which will be attached, form part of this Agreement and set out:

- a) How Canada, GNWT or others will provide the Akaitcho DFN with copies of the application or other information, including what information will be provided;
- b) The time lines for response by the Akaitcho DFN;
- c) Which departments/divisions in either Canada, the GNWT or both, as the case may be, the Akaitcho DFN will respond to;
- d) How Canada and the GNWT will inform the Akaitcho DFN of its action, if any, based on the Akaitcho DFN response; and
- e) Which of the Parties will sign the Schedules.

#### **4. OTHER ISSUES**

- 4.1 Upon the signing of this Agreement, Canada and the Akaitcho DFN will explore the possibility of entering into negotiations for the purpose of concluding an agreement regarding economic measures in the interim of an Akaitcho agreement.
- 4.2 Processes and Schedules may be developed to identify and address common issues with other Aboriginal groups.
- 4.3 Upon the signing of this Agreement, Canada and the Akaitcho DFN will discuss the resources that may be required to implement the Akaitcho DFN pre-screening process.

#### **5. GENERAL**

- 5.1 Nothing in this Agreement creates or denies rights and obligations arising out of Treaty #8 signed on July 25, 1900.
- 5.2 This Agreement does not constitute a binding contract, but rather serves as a bridge to the Akaitcho agreement.
- 5.3 This Agreement may be reviewed and amended with the written consent of the Parties.
- 5.4 The terms of this Agreement continue until the execution of the Akaitcho agreement or the termination of negotiations.

Signed at Lutsel K'e, Akaitcho Territory, this 28<sup>th</sup> day of June, 2001.

**For the Akaitcho Dene First Nations**

\_\_\_\_\_  
Sharon Venne  
Chief Negotiator

\_\_\_\_\_  
Witness

**For Canada**

\_\_\_\_\_  
John Gill  
Chief Federal Negotiator

\_\_\_\_\_  
Witness

**For the Government of the  
Northwest Territories**

\_\_\_\_\_  
Hugh Richardson  
Chief Negotiator

\_\_\_\_\_  
Witness

**Akaitcho Dene First Nations Chiefs**

\_\_\_\_\_  
Chief Don Balsillie

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Chief Archie Catholique

\_\_\_\_\_  
Witness

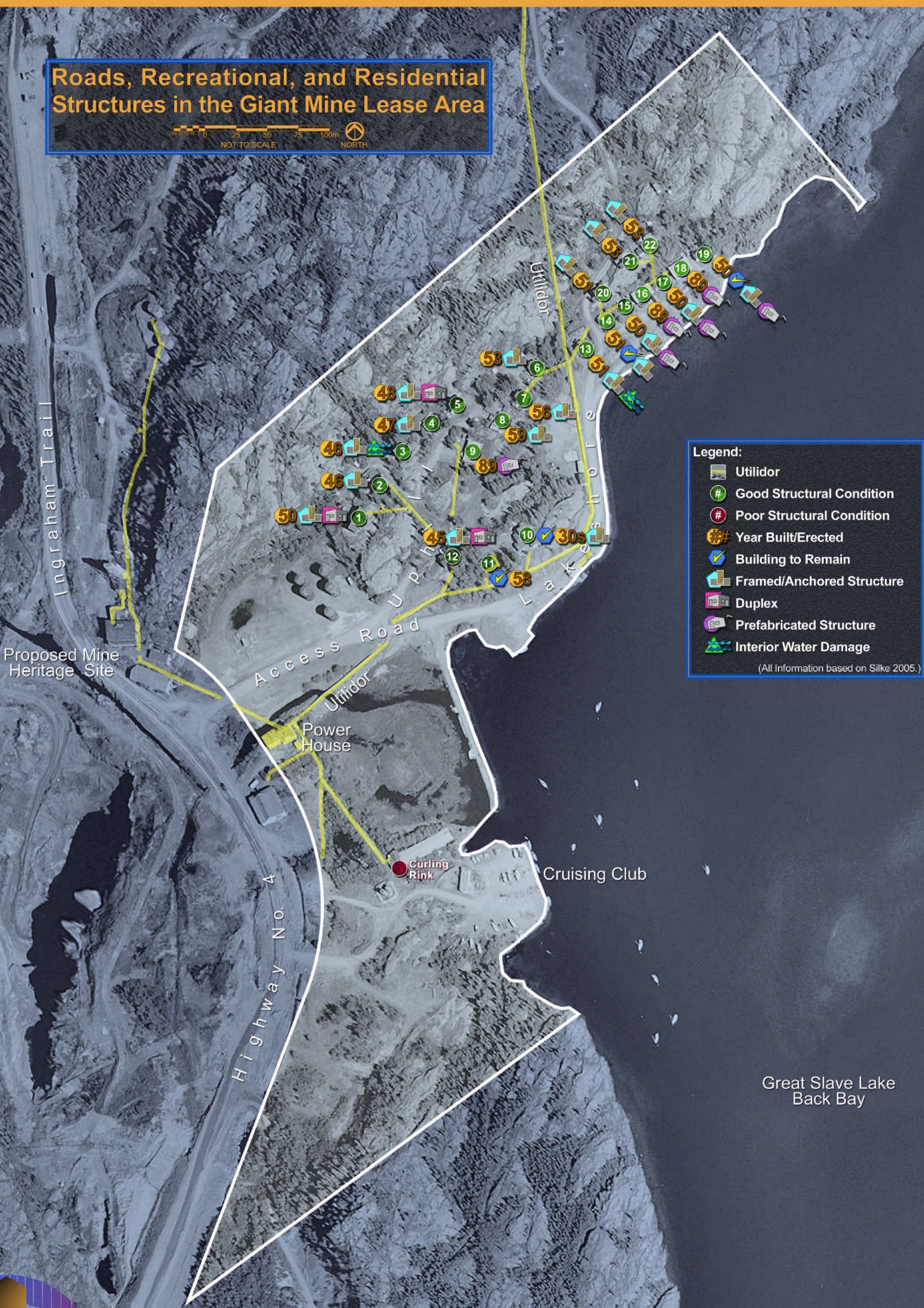
\_\_\_\_\_  
Chief Peter Liske

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Chief Rick Edjericon

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Witness

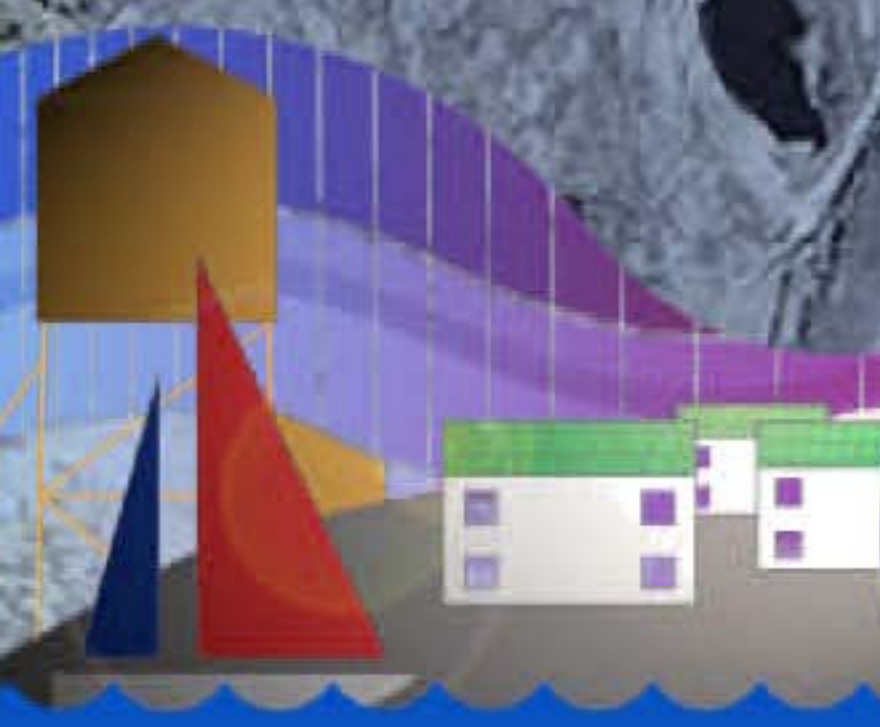
# Roads, Recreational, and Residential Structures in the Giant Mine Lease Area



**Legend:**

- Utilidor
- Good Structural Condition
- Poor Structural Condition
- Year Built/Erected
- Building to Remain
- Framed/Anchored Structure
- Duplex
- Prefabricated Structure
- Interior Water Damage

(All Information based on Silke 2005.)



# Aquatic Vegetation Along Baker Creek and Bearberry Distribution



Common Mares Tale

 Bearberry Distribution

Cattail

Proposed Mine Heritage Site  
Cattail Baker Creek

Baker Creek

Swamp Horsetail

Willow

Cruising Club

Great Slave Lake Back Bay



80%RO  
20%SF

60%RO  
40%SF

50%RO  
50%SF  
10%WL

### Vegetation Communities within and adjacent to the Giant Mine Lease Area



60%SF  
40%RO

80%RO  
20%SE

60%RO  
40%SF

60%DV  
40%DU

60%RO  
40%SF

70%DV  
30%DU

60%SF  
40%MF

80%RO  
20%SF

|    |                       |
|----|-----------------------|
| DU | Disturbed Unvegetated |
| DV | Disturbed Vegetated   |
| ME | Meadow                |
| MF | Messic Forest         |
| RO | Rock Outcrop          |
| RS | Raparian Shrub        |
| SF | Scrub Forest          |

Ingraham Trail

Proposed Mine Heritage Site

Access Road

Cruising Club

80%DU  
20%DV

60%DV  
40%DU

Highway No. 4

Great Slave Lake Back Bay





General PCB, Hydrocarbon and Arsenopyrite Locations Within and Adjacent to the Giant Mine Lease Area



Ingraham Trail

**FORMER PCB**

Proposed Mine Heritage Site

Access Road

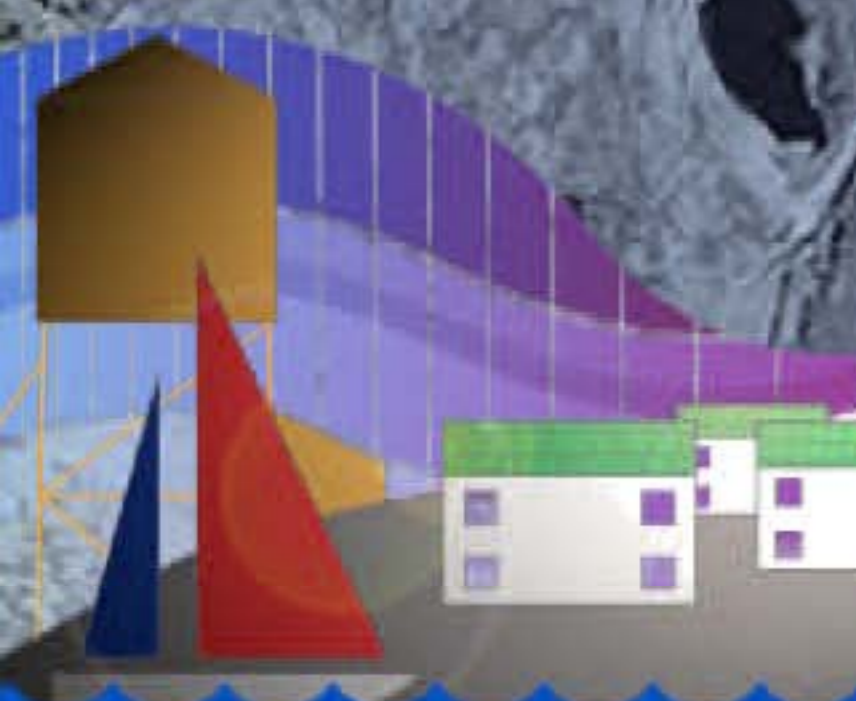
**Arsenopyrite**

**Hydrocarbons**

Cruising Club

Highway No. 4

Great Slave Lake Back Bay





# Proposals for Residential and Commercial Development

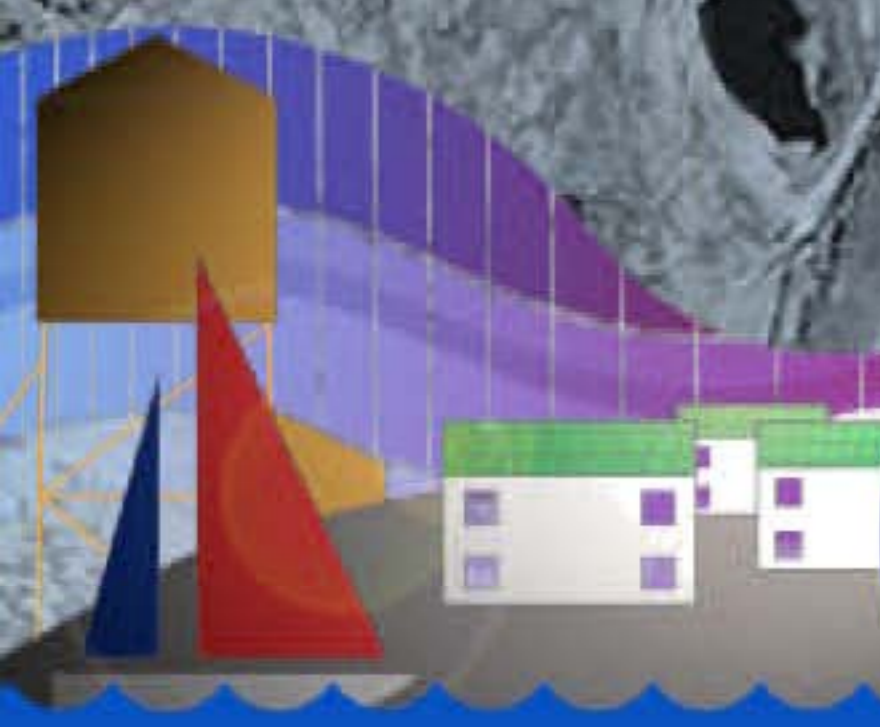
0 25 50 75 100m  
NOT TO SCALE  
NORTH



**Legend:**

- Future Residential Development
- Museums, Interpretive Centres, Commercial and Public Uses.
- Lease Interest:
  - A: Cruising Club Tentative Boundary
  - B: Mining Heritage Society Tentative Boundary
  - C: Waterfront
- Public Day Use Area
- Heritage Building to Remain
- Protect Baker Creek
- 50m Tree Buffer
- Protect Views  
(views to Old Town, Back Bay, and Latham Island as outlined in the Waterfront Management Plan Feb. 2001.)

Great Slave Lake Back Bay



# Proposals for Community Accessibility for Recreation and Tourism

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NOT TO SCALE  
NORTH



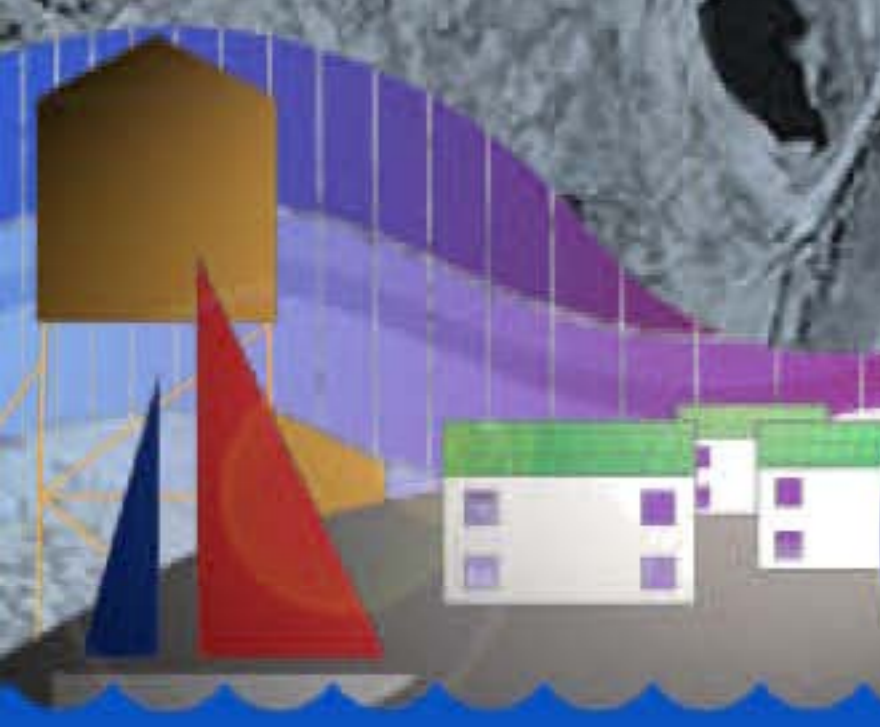
**Legend:**

- Public Day Use Area
- Protect Baker Creek
- Trails to Connect with Ski Club
- Parking
- Snowmobile Access
- Climbing Area

**Lease Interest:**

- A: Cruising Club Tentative Boundary
- B: Mining Heritage Society Tentative Boundary
- C: Waterfront

Great Slave Lake Back Bay



# Proposals for Heritage



Ingraham Trail

Highway No. 4

Access Road

U p h l l

L a k e s h o r e

**Legend:**

- Future Residential Development
- Museums, Interpretive Centres, Commercial and Public Uses.
- Public Day Use Area
- Heritage Building to Remain

**Lease Interest:**

- A: Cruising Club Tentative Boundary
- B: Mining Heritage Society Tentative Boundary
- C: Waterfront

Great Slave Lake Back Bay

