

# Yukon

Government



## *Whitehorse Copper Area Development Project Description*

25 August 2003

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## 1. INTRODUCTION

The Whitehorse Copper Development is a land development project proposed by the Government of Yukon, Community Services to meet ongoing demands for Country Residential and Service Industrial properties within the City of Whitehorse. The project area is located generally between the Alaska Highway and the old Copper Haul Road and between the Mt. Sima Road and the north end of the existing Wolf Creek Subdivision.

This document is intended to provide a description of the project for the purposes of a screening under the Yukon *Environmental Assessment Act*.

The *Environmental Assessment Act* requires the Government of Yukon to conduct an environmental assessment of the proposed project because the Government of Yukon (Department of Community Services) is a proponent for the project and will be required to permit and finance infrastructure construction and the disposition of land under the *Lands Act* (Department of Energy, Mines and Resources). Community Services is the lead Responsible Authority for this assessment. A Responsible Authority under the *Environmental Assessment Act* is defined as a territorial authority that either is a project proponent, finances the project, disposes of land or an interest in land, or is a regulator for a function that appears in the Law List. The *Canadian Environmental Assessment Act* contains a similar definition of a federal Responsible Authority; however, there are no such agencies in this case.

An environmental assessment is a systematic process for identifying and mitigating significant adverse environmental effects. A project may not proceed if it is likely to cause significant adverse environmental effects which cannot be mitigated. Under the *Environmental Assessment Act*, the environment means the components of the Earth, and includes:

- (a) land, water, and air, including all layers of the atmosphere;
- (b) all organic and inorganic matter and living organisms; and
- (c) the interacting natural systems that include components referred to in (a) and (b) above.

An “environmental effect” means, in respect of a project:

- (a) any change that the project may cause in the environment, including any effects of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site, or thing that is of historical archaeological, palaeontological, or architectural significance; and
  - (b) any change to the project that may be caused by the environment.
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When more than one government department is involved in a project, each department is a responsible authority (RA). To co-ordinate efforts and ensure a smooth and efficient process a lead RA manages the environmental assessment. For the purposes of this project, the Community Development Branch of the Government of Yukon is the lead RA.

Environmental assessment under the Yukon *Environmental Assessment Act* can follow different formats depending on the scale and nature of a project and the level of public concern. Environmental assessments may be conducted as screenings, comprehensive studies, mediations and Panel reviews. This project meets the requirements for a screening.

Under a screening the responsible authority is required to consider the following factors in an assessment:

- (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- (b) the significance of the effects referred to in (a);
- (c) comments from the public that are received in accordance with the *Act* and the *Regulations*;
- (d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
- (e) any other matter relevant to the screening, such as the need for the project and alternatives to the project, that the responsible authority may require to be considered.

An environmental screening follows a series of steps as follows:

- (a) project description: a thorough description of all aspects of the project and associated activities;
  - (b) scoping:
    - a. what components of the project to consider
    - b. what issues and aspects of the environment to consider;
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- (c) assessment of the likelihood and significance of adverse environmental effects; and
- (d) reporting.

Only after an environmental assessment is completed, and finds that the project is not likely to cause a significant adverse environmental effect, can government proceed with the project or dispose of land in relation to the project.

Environmental assessment is a planning tool and is best employed early in the design of a project. This project has been in a planning process since 1994, with major design effort and design changes being made over the last three years. However, the project was not subject to environmental assessment legislation until the devolution of responsibilities for land and water to the Government of Yukon took place on April 1, 2003. The City of Whitehorse's Official Community Plan (OCP) process and the Whitehorse Copper Area Development Scheme process considered environmental issues arising from proposed projects and involved extensive public consultation. The project has consequently been designed in keeping with various policies contained in the OCP regarding issues such as buffers, trails, heritage values, significant wildlife areas, etc. The OCP can be viewed at [www.city.whitehorse.yk.ca](http://www.city.whitehorse.yk.ca).

### **1.1 Your Role in this Screening**

One of the purposes of the *Environmental Assessment Act* is to ensure that there is an opportunity for public participation in the environmental assessment process.

The screening (environmental assessment) of the Whitehorse Copper Development Project is at the scoping step. The purpose of this step is to identify:

- all of the physical works and activities that make up the project; and
- the issues and environmental components that should be addressed in the screening.

A draft scope of project and scope of assessment are proposed in this document and are subject to revision based on comments from the public, stakeholders and governments. A project description is provided so that you can understand the proposed project and can provide your comments on issues of importance to you.

The scope of the assessment considers the effects of the project on the environment, including the effects of construction, operation and decommissioning. It is noted that there are no plans to decommission the project in the foreseeable future.

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The assessment will consider any change that the project may cause in the environment, including any effect on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, palaeontological or architectural significance.

The assessment will also consider effects on health and socio-economic condition that result from changes to the environment. The effect of the proposed development on property values and school enrolments are not considered within the scope of this review.

Previous consultation on this project identified a number of issues that will be considered in this assessment. The summary of issues is in Section 13.

In addition to a project description, this package includes:

- a summary of all the issues raised through previous consultations on this project. These issues will be considered in the screening (except as noted in the list). The issues are summarized in Section 13;
- a listing of changes made to the project as a result of public input and additional studies;
- a summary of some key environmental studies which were conducted to further investigate the concerns raised in relation to this project;
- a bibliography of documents related to the project which you can access for further information. All information related to an environmental assessment is public and is kept in a "Public Registry" for ease of public access. The Public Registry for the project is located in the Land Development Unit, Community Development Branch, Government of Yukon. Arrangements to view the documents can be made by contacting Ms. Marnie Barteaux at 667-3433.

Please review the following project documentation and identify any other issues which you believe should be considered by this screening. You may find that some issues have been addressed to your satisfaction by changes in the project design or based on recent studies. It would be useful to identify these as well so that the assessment can focus its energies on any outstanding concerns.

## **2. BACKGROUND**

The availability of land is fundamental to the economic development and social well being of the Yukon. Land development is required to directly or indirectly support almost all economic activity. A variety of land use types exist, and the Government of Yukon develops and maintains an inventory of each of the different types. Municipalities

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recognize that the availability of various classes of land within their communities is essential. They also recognize that their residents desire a variety of residential lands to address the diversity, needs, preferences and lifestyles.

Municipalities have land development responsibilities under the *Municipal Act* to provide for future development and land use within their communities. To meet these obligations, the Government of Yukon works with municipalities to develop and maintain a two-year inventory for most classes of land within each community. The two-year inventory has been established as the desirable level, given the length of time it takes to plan and develop new land and the difficulties that result when there is insufficient land to meet demand. Currently in the City of Whitehorse, there is no remaining inventory of Country Residential lots.

In the case of the City of Whitehorse, a residential land demand forecast carried out by the Government of Yukon in 2000 indicates a continued requirement for about 60 lots per year (country residential and urban residential). Recent past experience has seen sales of about 10 country residential lots per year and an average of 56 urban residential lots per year. The study also indicates that some 56% of potential purchasers desire country or rural residential lots.

Municipalities, through their community planning and zoning processes, have control over all land development within their jurisdiction. The Government of Yukon, as the land developer, cannot proceed with any land development within municipal boundaries without the full support and approval of the municipality.

In 1997, the City of Whitehorse, with support of the Government of Yukon, began an Area Development Scheme (ADS) for the area known as “Whitehorse Copper”. The ADS identified land suitable for a mix of uses including Country Residential, Commercial, Service Industrial, and Heavy Industrial.

In November 1999, the ADS was adopted by Whitehorse City Council following an extensive process of public open houses, City Council meetings and public meetings. Adoption of the ADS incorporated the land use plan and policies into the City’s new Official Community Plan (OCP) in 2002.

Within the context of the OCP, the Whitehorse Copper Development proposes the creation of a number of Service Industrial lots adjacent to the existing Mt. Sima Industrial Subdivision, and Country Residential lots to the north and northwest of the existing Wolf Creek and Wolf Creek North Country Residential Subdivisions. Country Residential redevelopment of the mostly abandoned residential area to the west of the Alaska Highway at McCrae is also proposed. Under the *Municipal Act*, it is illegal to authorize any type of land use that is not provided for in the Official Community Plan.

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### **3. PROJECT OVERVIEW**

The Whitehorse Copper Development includes the development and sale of a total of 102 Country Residential lots, 24 Service Industrial lots, a school site, and 5 community parks, all as indicated on the attached plan (Appendix A).

The Service Industrial lots will be located in the area immediately to the east of the existing Mt. Sima Industrial Subdivision. The lots will be serviced by two roads leading from the existing subdivision; one from McFadden Way (the old Mt. Sima Road) and one from Collins Way. Beyond the limits of the industrial subdivision, a new road extension will lead into the Country Residential development area. The plan clearly separates areas of country residential development from areas of industrial development by a minimum of 200 metres, consistent with the requirements of the OCP.

Within the old McCrae development area, a total of 20 new Country Residential lots will be created. Incorporated into the development plan are several existing Country Residential lots, an existing Heavy Industrial property, a Navcan air traffic control installation and a Ta'an Kwach'an Council settlement property. The main access to the area will be via an upgraded existing entrance from the Alaska Highway in the area opposite the Petro Canada station at McCrae. A road extension from the redeveloped area will lead into a larger Country Residential development area to the south.

A new access from the Alaska Highway into the development area will be built opposite the Meadow Lakes Golf Course. The new road will run generally westward to cross the White Pass & Yukon Route railway and enter larger Country Residential area between the railway and the Mt. Sima Ski Hill. Between the highway and the railway, the new road will service a small Country Residential subdivision with a total of 12 lots.

To the west of the railway and to the south of the McCrae and Service Industrial development areas, Country Residential development will be undertaken. Within this area, a loop road and several cul-de-sacs will access a total of 70 Country Residential lots.

Provision has been made within the development plan for a future railway extension from the existing rail line toward the abandoned Whitehorse Copper mine site. There are no current plans to construct the line.

The overall development will require the construction of a total of 12 km of new road. Roads will be built to rural industrial and residential standards as defined by the Transportation Association of Canada and the City of Whitehorse through its Servicing Standards Manual. Road surfacing will be bituminous surface treatment (BST) as is typical of such infrastructure within the City of Whitehorse, with hot mix asphalt paving in cul-de-sac bulbs. Several small creeks and wet areas will be crossed by the roads, however, field inspections indicate that none are of sufficient size to trigger requirements

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for Water Licenses. Road drainage will be through roadside ditches that will discharge into open areas.

A number of existing trails in the area will be either maintained or be relocated through open spaces. These are indicated on the attached plan.

Overhead electrical and telephone service will be provided by Yukon Electrical Co. Ltd. and NorthwesTel Inc.

Water supply and wastewater disposal will be the responsibility of individual lot owners who may chose to either install wells or obtain water delivery. Wastewater disposal will be through onsite sewage disposal (septic) systems licensed by the Environmental Health Services department of the Government of Yukon.

Detailed engineering design of the project is proposed to take place in 2004. The design of roadways and drainage will follow the requirements of the Transportation Association of Canada's *Geometric Design Guidelines for Canadian Roads* and the City of Whitehorse's *Servicing Standards Manual*. The *Servicing Standards Manual* has been adopted by resolution of City Council and serves as the key guiding document to road, water and sewer infrastructure within the City of Whitehorse. Overhead power and telephone services will be designed by Yukon Electrical Co. Ltd. and NorthwesTel Inc. to their standards.

The project will eventually see all roads, trails, greenbelts, parks and public utility lots transferred to the ownership of the City of Whitehorse.

#### **4. DRAFT SCOPE OF PROJECT FOR ENVIRONMENTAL SCREENING**

The scope of the project includes the following components:

- 102 Country Residential lots;
  - 24 Service Industrial lots;
  - Road right-of-way clearing, grubbing and stripping;
  - Construction of approximately 12 km of new road, including drainage ditches and culverts;
  - BST road surfacing and asphalt paving;
  - Construction of overhead power and telephone lines;
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- Legal survey of one future school lot;
- Legal survey of five neighbourhood parks;
- Legal survey of country residential and service industrial lots, utility easements, roads, walkways and public utility lots;
- Construction of a new Alaska Highway access and related infrastructure opposite the Meadow Lakes Golf Course and related highway lighting;
- Upgrading of the Alaska Highway access opposite the McCrae and installation of related highway lighting;
- Construction of one railway crossing over the existing White Pass and Yukon Route;
- Legal survey of a future railway line right-of-way from the existing White Pass and Yukon Route to the Mt. Sima Road, with allowance for two future railway crossings;
- Clean up of an existing WWII dump site west of McCrae and adjacent to the development as required by the Official Community Plan and the Area Development Scheme;
- Provision of a granular material borrow site across the Mt. Sima Road from the Whitehorse Copper Mine site;
- Provision of two waste disposal sites within the development for grubbing and stripping materials from road construction and building lot clearing;
- Provision of approximately 12 km of trails within the development area;
- Completion of a Fire Smart fuel modification program within the development area; and
- Public tender, lottery and sale of lots.

## **5. WORK CARRIED OUT TO DATE**

A number of studies and investigations have been carried out as part of the project development and have been used to prepare the conceptual plan attached to this project description (Appendix A). These include:

- 2003 Geotechnical Investigation
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- 2000 Surface and Groundwater Inventory
- Wolf Creek/Pineridge Water Quality Study
- Wolf Creek Well Monitoring Study
- 2002 Preliminary Groundwater Assessment of the proposed Whitehorse Copper Development Area
- Jurisdictional Review of Hydrogeological Assessment Requirements for Rural Residential Developments
- Detailed Ecosystem Mapping and Wildlife Habitat Assessment
- Trails Identification
- Contour Mapping and Terrain Analysis
- Heritage Assessment and Report
- Fire Smart Planning
- Fire Fighting Water Supply Investigations for south Whitehorse Subdivisions
- Power and Telephone Servicing requirements
- Highway access investigations to Transportation Association of Canada guidelines

More information regarding these investigations and studies is provided in this project description. These and other relevant documents pertaining to the project are listed in the bibliography contained in Appendix B. Copies of the various materials are contained in the Public Registry. . The Public Registry for the project is located in the Land Development Unit, Community Development Branch, Government of Yukon. Arrangements to view the documents can be made by contacting Ms. Marnie Barteaux at 667-3433.

The work carried out to date has identified areas with suitable soil and terrain conditions for development, various wildlife corridors and environmentally sensitive areas to be avoided, suitable road access points, heritage sites and trails to be incorporated into the design. Based on these considerations, the proposed development plan contained in Appendix A has been prepared by the project planners and engineers.

## **6. PROJECT CONSULTING TEAM**

The following consulting companies have provided input into the project development and design:

Lorimer & Associates	project management and civil engineering
Inukshuk Planning & Development	land use planning
EBA Engineering Consultants	terrain evaluation and geotechnical engineering
Gartner Lee	hydrogeology (groundwater) evaluation

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Applied Ecosystem Management	terrain and wildlife evaluation
Underhill Geomatics	contour mapping
Doug Craig, P.Eng.	copper mine workings and tailings evaluation
Hammerstone Archaeological Consulting	heritage evaluation
Trans Northern Management Consulting	fuel management plan

## **7. GEOTECHNICAL EVALUATION**

In 2001 and 2002, EBA Engineering Consultants Ltd. (EBA) undertook a geotechnical investigation and evaluation of the Whitehorse Copper Development Area. The work included:

- A review of the existing Wolf Creek North and Mt. Sima Industrial Subdivision Geotechnical Evaluations (EBA project number 0201-00-14337).
  - A review of historic and recent geology maps, air photographs, historic mining plans and existing geotechnical information to establish a baseline knowledge of pre-existing development prior to conducting the site reconnaissance.
  - Detailed terrain mapping of the study area on 1:10,000 scale air photographs to delineate polygons of differing surficial materials, texture, landforms, soil thickness and drainage, as well as the terrain stability hazard.
  - An assessment of the Whitehorse Copper mine site to identify potential hazards and risks associated with development in the vicinity of existing tailings ponds, open pits and location of underground structures associated with mining activity.
  - A field investigation program consisting of the excavation of 27 testpits throughout the areas identified as developable.
  - An assessment of the results of the field investigation and the preparation of recommendations for engineering design.
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The work carried out by EBA is documented in its report titled *Whitehorse Copper – Sima Road Area Development, June 2003*. In summary, the following information was provided by EBA:

### **8.1 Terrain Analysis**

An initial terrain assessment was carried out in December 2001 to provide preliminary information for project planning purposes. The assessment was based on an interpretation of available air photography and existing geotechnical information for the area, supplemented by ground reconnaissance. The mapping developed from the work included a legend describing terrain units; soil texture; geomorphological processes; materials; surface expression; and an assessment of terrain risk effecting development potential. In 2002, a second terrain map was developed with an additional terrain risk classification and adjustments to polygon locations based on the additional geotechnical data gathered during the testpitting program.

The assessment identified that, in general, the development area is characterized by a complex of features associated with deglaciation, including outwash channels and terraces, underlain by bedrock at varying depths. The texture of the glaciofluvial material includes gravelly sands and gravelly, silty, sand till with rounded cobbles and boulders, assumed to be a basal melt-out till. The area is generally well-drained, except on imperfectly to poorly-drained floors of glaciofluvial channels that host both permanent and perennial ponds. Permafrost is expected to be rare to absent in the study area.

### **8.2 Test Pitting**

EBA completed a site investigation program comprised of a total of 27 testpits throughout the study area. At each testpit location, detailed logs describing geotechnical conditions were prepared. Grab samples were collected at regular intervals throughout the depth of each testpit and all samples were returned to EBA's Whitehorse laboratory for natural moisture content determination and visual classification.

Due to the size of the study area, geotechnical conditions were found to be quite variable. Detailed geotechnical conditions are presented in EBA's report. Generally, conditions encountered reflected the conditions within the polygons identified during the terrain analysis. A summary of the geotechnical conditions identified is presented in the following table:

#### **SUMMARY of GEOTECHNICAL CONDITIONS**

<b>Designated Area &amp; Testpits</b>	<b>General Geotechnical Site Conditions</b>	<b>Development Constraints</b>	<b>Development Potential</b>
Wolf Creek North Phase II – Testpits	On bench where lot development is proposed, soil conditions vary from	Seasonal surface water and poorly	Good in areas where lot

14337-TP03, -TP04 and TP05 (proposed Country Residential)	sand till to gravely sand soils. Good potential for borrow for road construction but wet soils conditions will be encountered at the Alaska Highway exit	drained soils close to highway as well as moderately steep slopes overlooking the highway.	development is proposed
Old McCrae Military Subdivision Area – Testpits 15236-TP04, -TP05, -TP06, -TP07, and -TP08 (proposed Country Residential)	Area is predominantly sand till soils overlying siltier, dense tills. Area is well drained and there is a history of satisfactory soil conditions for on-site sewage disposal system installation.	Old dumpsite should be properly decommissioned with all waste removed from slope and hauled to landfill.	Good development potential as long as lot size is suitable to support on-site sewage disposal system construction in till soils.
Large Centrally Located Country Residential Development Area – Testpits 15236-TP13, -TP14, -TP15, TP16, TP17 & TP18 (proposed country residential)	Soil conditions vary from wet silty sand soils in low-lying areas (-TP13 area) to granular in central portion of site to shallow bedrock along west edge of proposed development area (TP18 area). Large portion of this area was assessed by airphoto analysis with little ground proofing.	Isolated low lying areas may require additional granular structure for roadway construction and shallow bedrock areas may make on-site sewage disposal construction difficult.	Good throughout majority of area with isolated areas that will require additional attention during roadway construction and septic field construction.
South End Of Study Area – Testpits 15236-TP09, -TP10, -TP11 & -EXP12 (initially proposed as country residential but no development scheduled for immediate future)	This portion of the study area is underlain with coarse granular soils. Terrain and geotechnical conditions are ideal for roadway construction and lot development. Shallow bedrock was noted along the west edge of the area.	Shallow bedrock would have been the only issue on some lots along the west edge.	Excellent potential for future country residential lot development.
Sima Road Industrial Subdivision Phase II Area – Testpits 14337-TP08, -TP09, & -TP10 (proposed industrial subdivision development area)	Previously completed geotechnical investigation noted sand till soils throughout majority of area will bedrock at east end and possibly west edge as well. Some low lying areas will be wet with significant organic soils at surface	Possible wet area may require additional granular structure for roadway construction & shallow bedrock may effect onsite sewage disposal.	Good potential for Industrial Subdivision development.
Sima Road Infill Areas – Testpits 15236-TP01 to TP03 and 15236-TP19 to -TP27 (proposed industrial subdivision in vicinity of Whitehorse Copper Mine Site)	Testpits 15236-TP01 excavated on a small granular terrace; 15236-TP02 & 03 excavated in a low lying wet area with up to a metre of organic cover and underlain by bedrock or saturated soils; 15236-TP19 to -TP27 have varying thicknesses of soil cover over bedrock and moderately steep slopes accessing this area from Sima Road.	Thick organics, soft subgrade conditions and shallow bedrock would make this area difficult to construct access roads and develop industrial lots.	Fair to poor as an Industrial Subdivision. Testpit 02 and 03 area has some potential as a topsoil source.

Based on the terrain and geotechnical conditions noted during the evaluation, EBA concluded that the development of the proposed country residential and light industrial development areas is feasible. Clean granular soils and silty sand till soils encountered during the field investigation are considered suitable for roadway subgrade construction and the 1 hectare minimum lot size chosen for the both the country residential subdivision and light industrial subdivision lots ensures adequate space for the

construction of a house or shop structure and the subsequent placing of an on-site sewage disposal system and well for water supply. EBA noted, however, that within the proposed development areas, some geotechnical and/or environmental constraints do exist as described in the preceding table. The areas with geotechnical concerns may effect roadway construction, and accordingly, EBA recommended that additional evaluations of the areas with potential concerns be evaluated after the roadway right-of-ways are cleared.

EBA also provided various recommendations regarding roadway construction, building foundations and onsite sewage disposal. The recommendations are typical for developments of this type in the Whitehorse area and will be reflected in the detailed engineering design to be carried out later.

## **8. GROUNDWATER EVALUATION**

In response to concerns by area residents about potential impacts to groundwater resources in the existing Wolf Creek and Pineridge Subdivisions, a comprehensive groundwater assessment was undertaken by Gartner Lee Ltd. The results of the assessment are documented in Gartner Lee's report titled *2002 Preliminary Groundwater Assessment of the Proposed Whitehorse Copper Development Area*. The conclusions of the evaluation were as follows:

- Most new wells in the proposed developments will likely be completed in bedrock.
  - Over half of the proposed development area is likely to be underlain by granodiorite bedrock. Historically, development of private wells in this rock type has proven to be difficult, expensive or unsuccessful. Trucked water delivery may be a more viable alternative for homes in areas underlain by granodiorite bedrock.
  - The estimated annual groundwater recharge rate exceeds the estimated groundwater consumption rate, indicating that development of the proposed subdivision is unlikely to deplete groundwater resources in the area.
  - None of the proposed development is located hydraulically up-gradient from the existing country residential subdivisions of Wolf Creek and Pineridge. Most of the wells and septic fields that will be installed in the proposed development are expected to have no effect on existing groundwater users in Wolf Creek and Pineridge because of the groundwater flow direction.
  - The predicted nitrate concentrations in the Whitehorse Copper area following development are lower than the currently predicted concentrations in groundwater from the Wolf Creek subdivision. Recently measured concentrations of nitrates in groundwater samples from the Wolf Creek subdivision met Canadian Drinking Water
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Quality Guidelines with a few exceptions. These results indicate that nitrates introduced to groundwater from septic loading in the proposed development area are unlikely to pose health concerns. However, it is recommended that routine monitoring of groundwater quality from the area be conducted as the development proceeds.

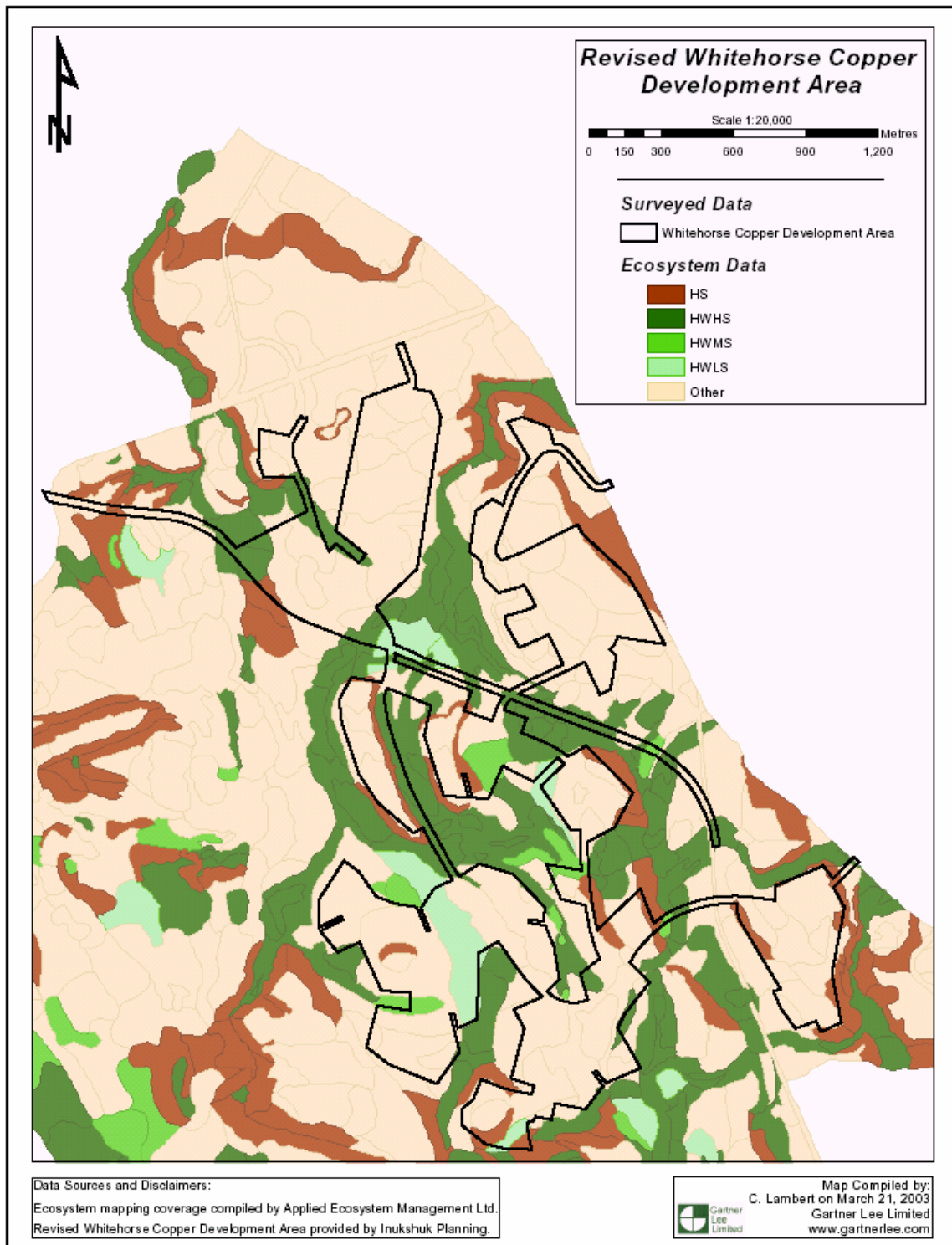
Although not specifically carried out for the purposes of the Whitehorse Copper Development project, two additional reports by Gartner Lee are referenced here. They are *Wolf Creek and Pineridge Subdivisions Groundwater Quality Assessment, 2003* and *Lon Term Monitoring Well #1, Wolf Creek Subdivision, 2003*. The two reports provide supplementary information regarding groundwater quality in the area, but do not impact the conclusions of the 2002 evaluation summarized above.

## **9. ECOSYSTEM EVALAUTION**

In 2002, Applied Ecosystem Management Ltd. (AEM) carried out an ecosystem mapping exercise to provide information to the project planning team regarding areas with high wildlife values and/or site sensitivity that should be avoided as much as possible in the project development. In 2003, Gartner Lee Ltd. (following its merger with Applied Ecosystem Management) revised the evaluation to reflect a modified project plan (see Appendix A) developed by the project design team.

The 2003 assessment is documented in Gartner Lee's report titled *Whitehorse Copper Area Development, Assessment of Revised Development Plan (Lot 102), 2003*. In summary, the conclusion of the evaluation is that some 94.4% of the development footprint falls outside of the high wildlife and/or high site sensitivity areas identified by AES. The report also concludes that the majority of areas of high wildlife and/or high site sensitivity have been avoided and are contained within community/environmental reserves. The map indicating the project footprint and the high wildlife and site sensitive areas identified by AES is reproduced below. In the drawing, the abbreviation HS indicates high site sensitivity, HWHS indicates high wildlife value and high site sensitivity, HWMS indicates high wildlife value and moderate site sensitivity, and HWLS indicates high wildlife value and low site sensitivity.

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## **10. HERITAGE EVALUATION**

In 2002, Hammerstone Archaeological Consulting carried out a heritage assessment of the development area in collaboration with the Heritage Resources Unit of the Government of Yukon and the Kwanlin Dun First Nation and the Ta'an Kwach'an Council. The assessment included archival research and field investigations. The evaluation is documented in Hammerstone Archaeological Consulting's reports titled *Preliminary Overview Heritage Impact Assessment of the Whitehorse Copper Development Area, Stage I Report, 2003* and *Whitehorse Copper Area Development Overview, Heritage Assessment, Stage II Final Report, 2003*.

The assessment identified five small sites, including two small lithic scatters likely of approximately 1,200 years age, two recent squatter sites, and a small cabin likely dating to the early 20<sup>th</sup> century. The evaluation concluded that the sites are not unusual in any way and that there are many other examples throughout the area. The sites were documented during the field work and it is concluded by the investigators that no preservation is required. The study recommends, however, that if additional sites are encountered during the development work, that the Heritage Resources Unit be contacted to carry out any additional documentation that may be appropriate. The assessment also identified an abandoned dump site near McCrae dating back to the 1940s. The dump site is not within the development footprint.

## **11. HIGHWAY ACCESSES AND TRAFFIC COUNTS**

### **11.1 Alaska Highway Accesses**

The development will entail two highway accesses. One access will be an upgrading of the existing access opposite Fraser Road in McCrae. This access will provide entry to the development area to the west of the Alaska Highway at McCrae. A slight relocation of the existing road will be carried out to reduce the gradient into the development area. A new access will be constructed at a location opposite the Meadow Lakes Golf Course at the bottom of a long vertical sag curve that runs through the area on the Alaska Highway. Yukon Transportation Engineering has been consulted regarding the accesses and both locations meet design standards for highway sight distances. Both accesses will be designed and constructed in accordance with the Transportation Association of Canada's *Geometric Design Guide for Canadian Roads* and the requirements of the Transportation Engineering Branch. Although detailed designs for the two accesses have not yet been undertaken, they will incorporate turning and acceleration/deceleration lanes, and street lighting for safety purposes as generally exists at the existing Fireweed Drive (Mary Lake Subdivision) and Alaska Highway intersection.

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## 11.2 Traffic Counts

Concern has been expressed by some area residents regarding traffic volumes on the Alaska Highway and the impact of the new development.

The following information is taken from *2001 Yukon Traffic Count Summary* prepared by the Department of Infrastructure (now Highways and Public Works):

Average daily traffic counts on the Alaska Highway at km 1457.8 (Cowley Creek Subdivision) were as follows over the last several years (2002 data is not yet available):

1997	3204	(Data incomplete)
1998	3299	
1999	3241	
2000	3013	
2001	2971	

Average daily summer traffic counts at the same location were as follows:

1997	n/a	(Data incomplete)
1998	4073	
1999	3972	
2000	3782	
2001	3732	

The average daily winter month counts (October to April) are as follows:

1997	2533	
1998	2650	
1999	2525	
2000	2389	
2001	2474	(October to December only)

The traffic counts are made by sensors that are located in the highway surface. Yukon Transportation Engineering has advised that they believe that at this location some of the eastbound traffic turning right into the Cowley Subdivision may be bypassing the sensor. This is believed to have less impact in the winter months when snow along the sides of the highway restricts the ability of traffic to bypass the sensor. It should be noted that this does not impact westbound traffic counts (the counts listed above are totals for both directions). It should also be noted that although there may be a small effect on vehicle numbers in the eastbound direction, there is little or no impact on the trends over time.

The peak occurs in July at about 4,000 vehicles per day.

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Further, north end traffic counts in the Crestview area are about the same as at the Cowley site.

The 102 country residential lot and 24 service industrial lot project is expected to add approximately 300 to 400 total vehicle movements per day when fully developed.

## **12. PUBLIC CONSULTATION**

Public consultation is an important part of environmental assessment. It ensures that a full suite of issues is considered and that all likely significant adverse effects are identified and understood.

This screening currently proposes two opportunities for input from the public:

- The opportunity provided by this project description to identify issues and comment on the scope of the project and the assessment prior to September 30, 2003; and
- A review of the draft screening report (30 days) to determine if all the issues within the scope of the assessment have been accurately captured and fairly addressed.

As a result of the April 1, 2003 devolution from the federal to territorial governments, the environmental screening process began later than would normally be the case; however, it is believed that the process already carried out and that outlined above will provide adequate opportunity for public input. Other opportunities may also be made available and your comments on what you think would be the best process for you are invited.

Prior to the start of this screening, the Area Development Scheme (ADS) and Official Community Plan processes of the City of Whitehorse involved various consultations. The preparation of the ADS included five open houses and a guided tour of the study area. The ADS was discussed at 14 City Council Meetings and 2 public hearings and was adopted by City Council in November 1999. Subsequently, the land use plan and policies of the ADS were incorporated into the City of Whitehorse 2002 Official Community Plan.

The Government of Yukon conducted public consultation, including three open houses (June 18, 2002, September 17, 2002 and January 8, 2003) held to present and review development options and the results of various site investigations and assessments. In addition, project information was circulated to area residents and open house attendees, and onsite meetings were held with individual area residents to address particular concerns. Responses to questions and enquiries received by the Community Development Branch were also provided.

A number of issues were raised at these various consultations. The key issues are summarized below.

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Water quality and quantity:

- Industrial activities may contaminate aquifer and sources of drinking water.
- New users may deplete aquifer for existing users.
- Water use and septic systems may affect City of Whitehorse water supply.
- Lots should be large enough for water supply and septic system.

Wildlife:

- Habitat loss and degradation.
- Interference with travel corridors.

Traffic:

- Safety of highway access points.
- Safety of mixed use roads (industrial, commercial and residential).
- Increased traffic.
- Emergency access easement off Harbottle Road.

Noise and Disturbance:

- Proximity of country residential lots to service industrial and commercial lots.
- Residential lots boxed in by service and heavy industrial areas.
- Mixed use roads.
- Lack of visual screen from Alaska Highway to highway commercial lots.

Recreational Use and Trails:

- New development may interfere with existing recreation and trail use.

Subdivision Location:

- Alternatives.
- Demand.
- Infill and urbanization.

Radon:

- Potential for radon gas in Whitehorse area.

Schools:

- Increased population in south of Whitehorse may exceed school capacity. \*

Cumulative Effects:

- Effects of development in Whitehorse Copper and McLean Lake road.

Future Opportunities:

- Subdivision may limit future resource extraction opportunities.
  - Service and commercial lots in need.
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- Effect on property values. \*
- Access to natural gas. \*

\* Note: These items are not within the scope of the environmental assessment.

In response to the issues of concern raised through the various forums, as well as additional site work carried out during the design process, a number of changes and adjustments were made to the project. These included:

- Detailed geotechnical investigations resulted in adjustments to road and lot locations, and the removal of some lots.
  - Detailed ecosystem mapping resulted in adjustments to road and lot locations to better accommodate wildlife corridors and other environmentally significant areas.
  - A proposed emergency access from the Wolf Creek Subdivision was removed.
  - Lots in the area of the previous emergency access from the Wolf Creek Subdivision were reconfigured to reduce impacts to the trail at that location.
  - At the spot where the access road from the Alaska Highway crosses the railway, an adjustment to the road location was made to better protect the integrity of a creek commented on at the first open house.
  - An allowance for a future school site was added in response to concerns raised at an open house.
  - In response to input from the first open house, the lots on the bench above McCrae were sized as larger rather than smaller country residential lots.
  - Proposed industrial and residential pockets along the Mt. Sima Road were removed as they are not reflected in the current Official Community Plan.
  - Additional trails and trail linkages were added to the development plan. New linkages to the Trans-Canada Trail were incorporated.
  - Reflecting comments received from the public, a number of layout changes were made to provide better internal loop roads, fewer cul-de-sacs, preservation of environmental open spaces, and better linkages of environmental corridors and community resource lands.
  - A hydrogeological assessment of the proposed development area was carried out to address concerns of area residents regarding impacts to groundwater quality and quantity in the existing Wolf Creek and Pineridge subdivisions.
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- Lots in the area to the west of the existing Wolf Creek Subdivision were removed, resulting in the current 102 lot configuration.
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***APPENDIX A***  
***Project Drawing***

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***APPENDIX B***

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