Highland Estates

Master Plan
V4

Prepared for:
City of Whitehorse

Prepared by:
Stantec Consulting

August 3, 2026

Project/File:
115825012

Stantec Consulting Ltd.

Disclaimer

The conclusions in the Report titled Highland Estates are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from City of Whitehorse (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: _____

Signature

_____

Zoë Morrison

Reviewed by: _____

Signature

_____

Gord Lau

Master Plan – Table of Contents

Disclaimer ..... **ii**
1 Introduction **1**
1.1 Purpose 1
1.2 Master Plan Area 1
1.3 Plan Interpretation 1
1.4 Land Ownership and History 2

2 Existing Site Conditions **5**
2.1 Surrounding Land Uses 5
2.2 Site Description 5
2.3 Heritage 6
2.4 Geotechnical Assessment 6
2.5 Environmental Site Assessment Phase 1 7

3 Planning Context **9**
3.1 Official Community Plan 9
3.2 South Growth Area 11
3.3 Planning Process to Date 12
3.4 Community and Stakeholder Engagement 12

4 Development Plan **13**
4.1 Concept Plan 13
4.2 Topography 14
4.3 Future development and connections 14
4.4 Bare Land Condominium 15
4.5 Zoning 16

5 Open Spaces and Community Amenities **20**
5.1 Existing Open Space 20
5.2 Public Use Dedication 20

6 Transportation Network **22**
6.1 Proposed Access 22
6.2 Existing Roadway Upgrades 23
6.3 Access Agreement and Maintenance Agreement 23

7 Servicing **26**
7.1 Water 26
7.2 Sanitary Services 27
7.3 Stormwater 30
7.4 Fire Protection 30
7.5 Parcel Grading 30
7.6 Electrical and Telecommunications Utilities 31

8 Implementation and Phasing **35**
8.1 Phasing 35
8.2 Next Steps 35

Appendix A Proof of Title **1**

Appendix B Permission to Act for Landowner 2
Appendix C Letter of Permission for a Site Visit 3
Appendix D Heritage Resources Overview Assessment 4
Appendix E Geotechnical Assessment 5
Appendix F Environmental Site Assessment 6
Appendix G Engagement Overview 7
Appendix H What We Heard Report 11

1 Introduction

1.1 Purpose

The purpose of the Highland Estates Master Plan (MP) is to describe the development objectives and proposed land use for a parcel of land, Figure 1 – Location Plan, west of Hamilton Boulevard, located in the City of Whitehorse. The MP will guide future rezoning, subdivision, and development of the Development Parcel.

The MP has been prepared using the City of Whitehorse planning and development policies and guidelines. Stantec Consulting Ltd. (Stantec) has prepared the MP on behalf of the Developer, Lobird Living Corporation.

This MP is intended to meet the requirements of the City of Whitehorse Master Plan Policy and, based on the size and location of the project, is considered a Tier Two Master Plan. According to the City's policy requirements, this document should describe:

- The project's alignment with City policies, plans, bylaws, studies and legislation
- Summary of the public engagement process and results
- Vision for the planning area
- Concept Plan and description of proposed residential parcels
- Conceptual Servicing
- Description of proposed access roads
- Implementation plans and build-out timelines

1.2 Master Plan Area

The Development Parcel is located within Lot 1207 QUAD 105D/11, as shown in Figure 2 – Planning Context. Access to parcel is via Lobird Road, which connects to the roundabout at the south end of Hamilton Boulevard. The area is served by the City of Whitehorse transit system.

The planning area consists of three parts, the Development Parcel (9.88 ha), access through the existing Lobird Estates parcel (1.02 ha) and Public Land Use Dedication at (3.9 ha).

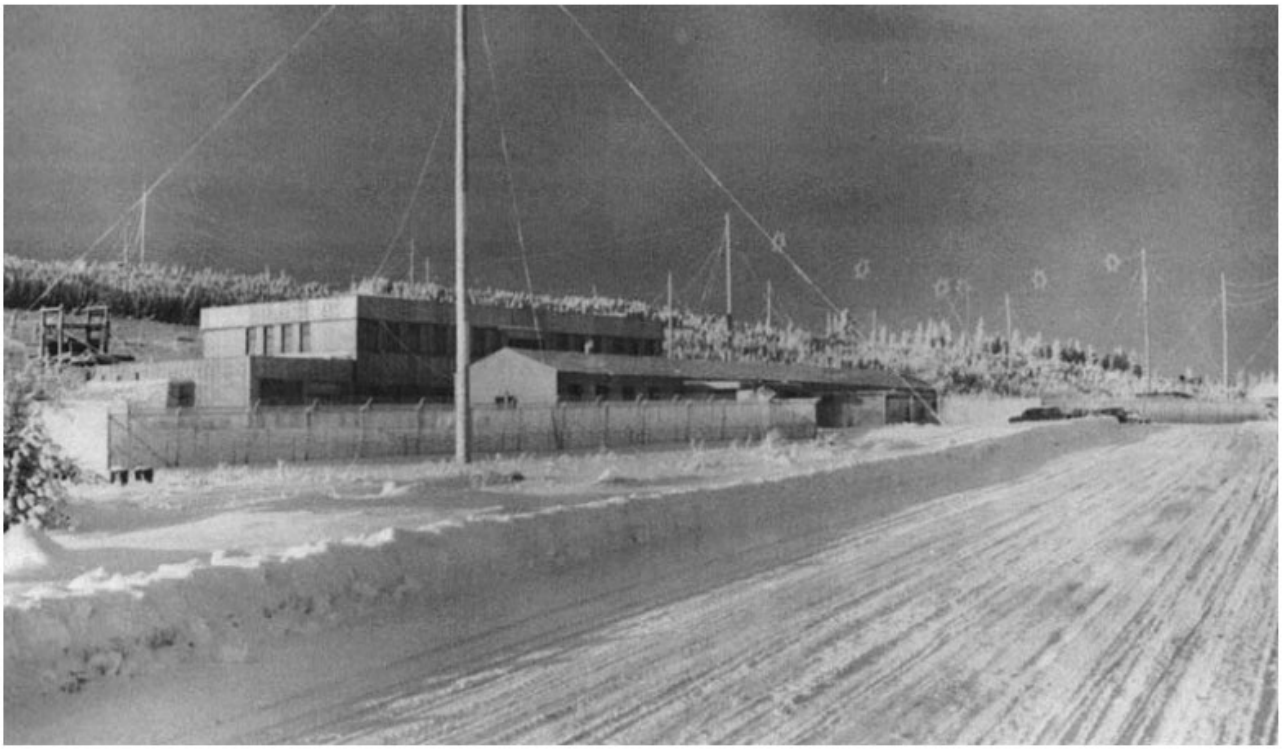
1.3 Plan Interpretation

The MP is intended to guide development; all images as shown have been included for visioning purposes only and should not be used to identify exact product types or locations. All area calculations presented in this Plan have been determined using AutoCAD measurements, recorded in hectares/acres. Due to the conversion and subsequent rounding shown in this Plan, it is recognized that not all numbers or calculations are absolutely accurate, specifically for small areas. Final areas and locations will be refined in the rezoning and subdivision applications.

1.4 Land Ownership and History

The Development Parcel is legally described as 8064530 LOT 1207 QUAD 105D/11 and owned by Lobird Living Corp., represented by Dwight Chalifour and Henry Deacon. They have owned this property since 2021.

The Lobird Estates property once belonged to the Royal Canadian Air Forces. In the early 1950s this site was home to a RCAF radio unit and was operated as part of the RCAF communication system until 1968. During the 1970s and 1980s this area was developed as a public mobile home park, with some of the park and infrastructure on lease commissioner's land. In the early 2000s, Whitehorse City Council approved a consolidation of several leased parcels. The former military quarters are now known as the Lobird Mobile Home Park and the former Operations and Administration building is now a multi-unit building, now known as the Radar Apartments.



5 Radio Unit Operations Building at Lobird, unknown date. Photo Credit: Unknown.

Updated 25/08/20, 9:28 AM;By: SSTAFFORD

NOT TO SCALE

December 10, 2025

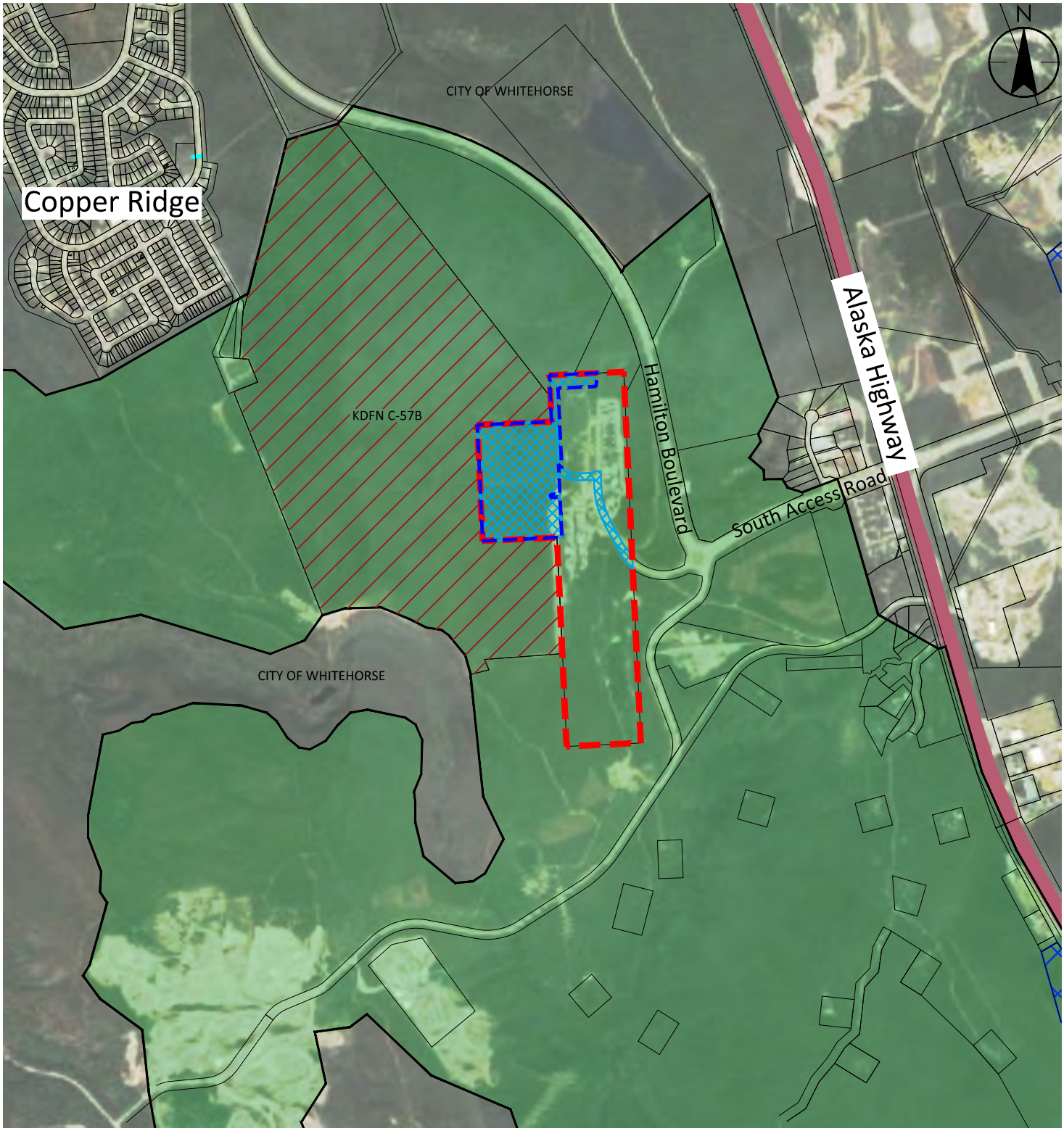
Figure 1

Location Plan

Highland Estates

Stantec

C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_MF.DWG



NOT TO SCALE

December 10, 2025

Legend:
- South Growth Area
- KDFN Settlement Land
- Plan Area
- Development Parcel
- Private Ownership Boundary

Stantec

Figure 2
Planning Context
Highland Estates

Updated 25/12/10, 11:07 AM;By: SSTAFFORD
C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_MF.DWG

2 Existing Site Conditions

2.1 Surrounding Land Uses

Kwanlin Dün First Nation lands

The Development Parcel is bordered by Kwanlin Dün First Nation (KDFN) settlement land to the north, west, and south (KDFN C-57 B). These areas are undeveloped, but there are some well-used walking and mountain biking trails throughout the area. In the KDFN Community Lands Plan, KDFN C-57 B is identified for community development, including plans for both residential and public service infrastructure.

Lobird Estates

Directly to the east of the Development Parcel is an existing mobile home park, Lobird Estates. This area has a two-story apartment building and 82 mobile homes, with approximately 300 residents. The existing homes are connected to a private piped water distribution system and a private sewage lagoon system that is located to the south of the home park. Both systems are owned and operated by Lobird Living Corp.

2.2 Site Description

Vegetation

The Development Parcel is currently undeveloped, with mixed vegetation. Most of the area is vegetated, and the area is crossed by informal trails. The southern portion of the subdivision boundary is largely coniferous trees, and the northern portion is mixed forest, with second-growth tree cover.

Slopes

The Development Parcel has a steep topography with elevations ranging from 805 m to 835 m for an overall relief of about 30 m. The area slopes upwards from east to west, with more gentle slopes in the southwest. Along the eastern edge of the Development Parcel, gentle slopes (7% to 16%) are found (Tetra Tech, 2023). The contours are shown in Figure 3 – Existing Conditions.

Access

Access to Development Parcel is via Lobird Road, which connects to the roundabout at the south end of Hamilton Boulevard. Past Lobird Road is a granular-surfaced private roadway. The granular roadway from the City ROW to the proposed intersection appears to contain numerous potholes and a lack of drainage relief along the frontage of the Radar Apartments.

The area is serviced by the City of Whitehorse transit system. The existing bus stop and community mailboxes are located along this existing roadway, in proximity to the Radar apartments. These existing access features are shown in Figure 3 – Existing Conditions.

Services

There is currently no municipal piped water or sewer services in the area, and the closest municipal systems are located approximately 1.5 km away in Copper Ridge to the northwest.

The existing Lobird Estates mobile home park is serviced with water and sewer through a private system. There is an existing water well near the Radar Apartments and is supplemented with water delivery to provide drinking water to the building and mobile homes. Sewage from the existing residences is piped to the private sewage lagoons south of the development for treatment. It is understood that the existing sewage lagoon system is at capacity, and no new homes can be added to the system at this time.

2.3 Heritage

A Heritage Resources Overview Assessment (HROA) was completed by Stantec for the Development Parcel. This study is included as Appendix C. The HROA involved a detailed desktop review to describe the nature and extent of recorded heritage sites near the study area, determine the level of potential for anticipated types of heritage sites, classify the land base into areas of heritage potential, and recommend whether additional heritage assessment is warranted for the Development Parcel.

The nearest hydrological features to the study area are Ice Lake (700 m northeast) and McLean Creek (750 m southeast). Disturbance is common throughout the eastern portion of the Development Parcel, likely due to prior mineral exploration and ongoing recreational use of the area. Trails, berms, and push piles appear to be common forms of disturbance in the Development Parcel, as well as leveling near areas where development has occurred. Based on a data request to the Yukon government's Heritage Resource Unit, there are no recorded heritage sites within the Development Parcel. There are two archaeological sites within 1 km of the study area.

The Development Parcel was found to have low heritage potential based on the distance of the study area from hydrological features and the absence of distinct, well-drained landforms with vantage points and viewsheds that would represent favorable locations for camping while moving through the area. As the desktop study found no areas of elevated heritage potential, no further heritage assessment is required.

In 2017, the City of Whitehorse commissioned a study into the feasibility of developing the South Growth Area as a new residential neighbourhood. The Development Parcel falls within this potential growth area. The report is called *"Southern Containment Boundary Feasibility Study: Final Report*" and a HROA was completed as part of this report. This assessment identified 14 previously recorded archaeological sites within the South Growth Area, as well as seven Historic Period sites that are recorded in the Yukon Historic Sites Inventory. There are no sites identified within the Development Parcel.

The 2017 HROA for the South Growth Area used GIS analysis to identify areas of high heritage resource potential within the study area. While the GIS analysis did identify areas of high heritage resource potential within the Development Parcel, the HROA that was completed by Stantec for this project did not. Yukon government's Heritage Resources Unit has confirmed that they agree with findings of the HROA completed in 2025 and have no heritage concerns within the Development Parcel.

2.4 Geotechnical Assessment

A geotechnical assessment, with a drilling program, was completed by Tetra Tech in 2023. The report summarizes the work completed, conditions encountered and presents recommendations to support design and construction of this development. For full details, refer to Appendix E.

Four test pits were excavated within the Development Parcel, and samples were collected. During the field visit, bedrock was encountered at varying depths of greater than 4m deep at the south end of site (TP01), between depths of 1.2 m and 3.0 m in the central area of site (TP02, TP03 and TP04), and exposed bedrock found throughout the north end of the site. Tetra Tech noted that the bedrock in TP02 and TP03 was competent and very difficult to excavate and that the near surface bedrock throughout the north half of site is considered a serious constraint that will affect roadway construction, foundation design and construction, well installation and on-site sewage disposal system design and installation.

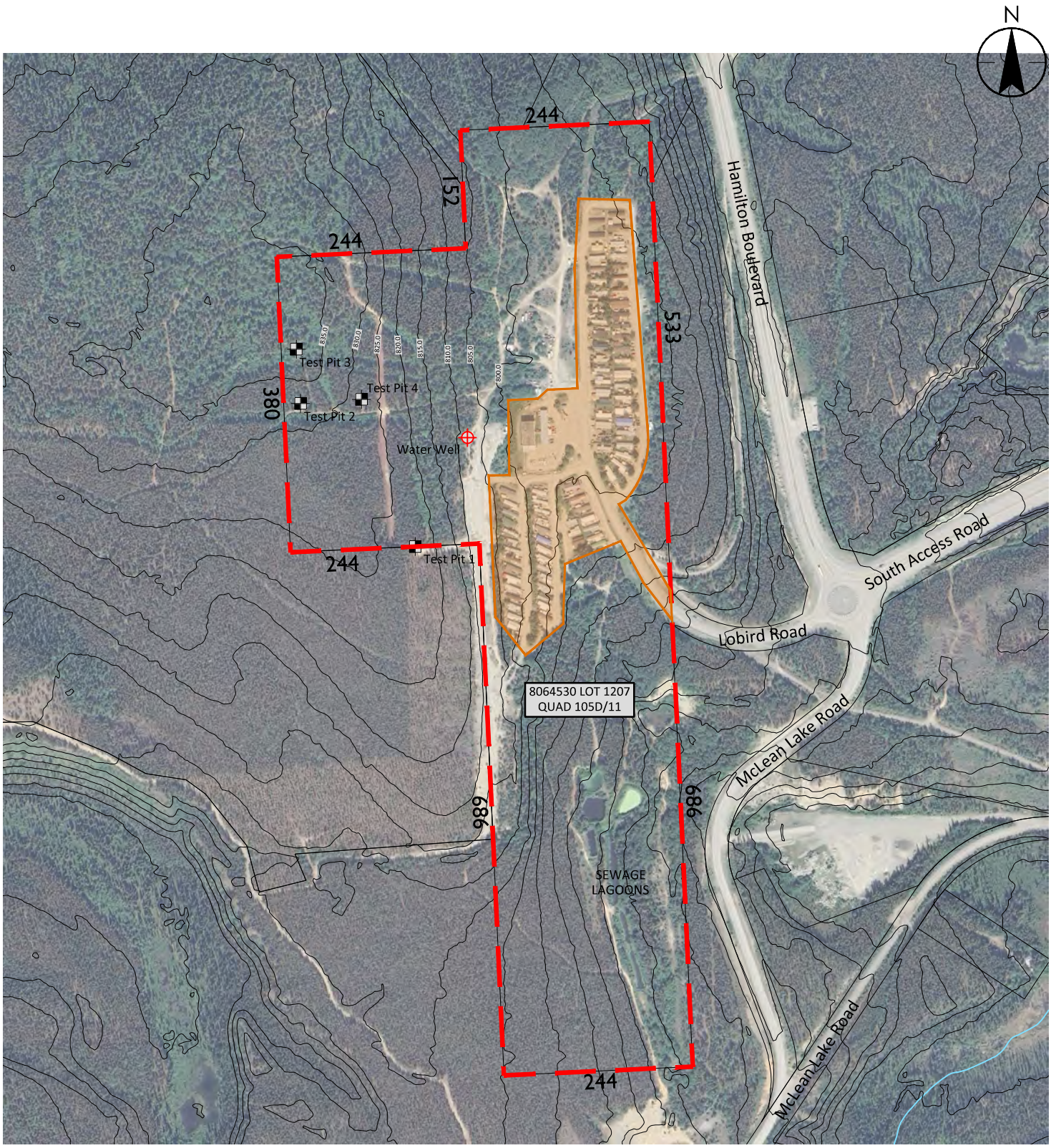
It was recommended that parcels in the southern half of the site be developed first, and based on the grading plan, any additional material should be used to provide additional soil cover to the northern half of the site.

The report confirms that the minimum proposed parcel size of 0.5 ha will be acceptable for on-site sewage disposal systems. In areas where there is shallow bedrock or bedrock at surface, Government of Yukon – Environmental Health Services will likely dictate that an “Engineered System” be provided.

The report also makes recommendations about appropriate compaction, roadway structure, foundations and imported granular material. These recommendations will be incorporated into the detailed design for this project.

2.5 Environmental Site Assessment Phase 1

A Phase 1 Environmental Site Assessment (ESA) has been completed for the entire property owned by Lobird Living and is included as Appendix F. The ESA identified several areas of potential environmental concern within the broader Lobird property, but none within the Development Parcel. No further investigation is recommended for the Development Parcel.



NOT TO SCALE

December 10, 2025

Legend:
Existing Development
Lobird Ownership Boundary

Figure 3
Existing Conditions
Highland Estates

Stantec

Updated 25/12/05, 3:49 PM;By: SSTAFFORD

C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_MF.DWG

3 Planning Context

3.1 Official Community Plan

The section below provides an assessment of how the proposed Highland Estates fits with the policy statements set out in the City of Whitehorse Official Community Plan (OCP).

3.1.1 Environmental Stewardship – Slopes (OCP Section 7.7 to 7.9)

As outlined in the previous section, the Development Parcel includes some areas with steep slopes. As shown below, the proposed Highland Estates meets the requirements of the Environmental Stewardship section of the OCP.

Table 1 - Environmental Stewardship Policy

Policy	OCP Policy	Alignment Note
7.14	A professional geotechnical assessment will be required for all development on, or within 15 metres of slopes greater than 2 metres in height and in excess of 20% (5 horizontal to 1 vertical).	Geotechnical assessment has been completed and recommendations for the development were provided.
7.15	All development, including building, grading, and tree harvesting, will be prohibited on slopes that exceed 30% (3.3 horizontal to 1 vertical). The only exceptions will be for critical infrastructure, trails, and viewpoints, provided that a professional geotechnical assessment, accepted by the City Engineer, can demonstrate reasonably safe conditions.	Slopes do not exceed 30%
7.16	All new development will be set back a minimum of 15 metres or 1.25 metres multiplied by the height of slope, whichever is greater, from the top or bottom bank of any slope over 30%, as illustrated on Figure 7 - Illustration of Escarpment Setbacks. The only exceptions will be for critical infrastructure, trails, and viewpoints.	Slopes do not exceed 30%

3.1.2 Residential – Country (OCP Section 15.15)

The Subdivision Boundary is designated as Residential – Country in the OCP. This designation is intended to accommodate rural residential uses on larger lots that generally rely on onsite water and sewer services. The proposed uses in Highland Estates are consistent with rural residential uses.

Table 2 – Residential Country Policy

Policy	OCP Policy	Alignment
15.15.1	Uses that may be suitable for inclusion in the Residential - Country areas include but are not limited to single detached housing on large lots, parks and recreation sites, community halls, schools, or places of worship.	Proposed use is single detached housing and fits within this policy.
15.15.2	Non-residential development in Residential - Country areas will be considered to provide convenient access to services for residents. Home-based businesses that provide opportunities for	Proposed use complies with this policy.

	occupations and small-scale entrepreneurial business in Residential - Country areas will be supported.	
15.15.3	Residential – Country developments will be designed to rely on on-site sewage disposal (i.e., septic system) and non-communal water sources (e.g., individual wells, trucked water delivery to tanks).	On-site sewage and individual water systems will be used to support this development.
15.15.4	To ensure adequate lot area for onsite sewage disposal, the minimum size for lots located in Residential – Country areas is 1.0 hectare. i. Notwithstanding the above, new residential development may occur with lot sizes below 1.0 hectares to a minimum of 0.5 hectares so long as the applicant is able to adequately demonstrate the site and aquifer area has the capacity to accommodate long-term on-site servicing. Further restrictions may be applied during the Zoning Bylaw update.	Minimum lot size 0.5 ha; proposed development to use private servicing. A drawdown and flow test was completed, and identified sufficient water.
15.15.5	New Residential- Country lots, or subdivision of existing lots, may be required to prepare a professional geotechnical study confirming the soils' capacity for sewage percolation and potential for conflict with groundwater resources.	Geotechnical assessment has been completed.
15.15.6	All new Residential – Country lots, or subdivision of existing lots, that propose groundwater wells as their water source will be required to prepare a professional hydrological study to confirm the site's aquifer capacity.	Study into the potential water wells has been completed.

3.1.3 South Growth Area (OCP Section 15.17.11 to 15.17.11)

In the OCP, the Development Parcel falls within the South Growth Area. According to the OCP, the City will undertake further planning of this area, with the long-term intention of developing a new urban neighbourhood. The City envisions that piped services will be extended to provide water and sewer service to this area. It is understood that over the next few years, the City, Yukon government, and KDFN will work together to plan the future development of this area. The timing of the preparation of this area for residential development and the construction of piped water and sewer to service this area is uncertain.

This Development Parcel can be developed without negative impacts on the South Growth Area. The road network shown on the concept plan has been designed to allow for connections to the north and south of the Development Parcel, allowing access and connection to potential future development on KDFN lands.

It is recognized that development of the South Growth Area may be many years away. In addition to the timing, the South Growth Area poses unique development challenges related to grades and defining the actual developable area. Advancing the Development Parcel provides for immediate additional housing options in the City while the South Growth Area planning occurs in the background.

Table 3 – South Growth Area Policy

Policy	OCP Policy	Alignment Note
15.17.11	The City is committed to moving forward with the further planning of the South Growth Area's development as a new residential neighbourhood. Some feasibility studies have been completed, but more in-depth work is needed to better understand the potential costs and challenges associated with extending water and sewer services to this area; this process is anticipated to take many years before lots will be ready to sell.	The proposed development does not conflict with this policy.

15.17.12	The City acknowledges that Ta'an Kwäch'än Council and Kwanlin Dün First Nation hold substantial Settlement Land parcels in the South Growth Area. The planning and subsequent development of the South Growth Area will require significant collaboration, investment in infrastructure, and partnership commitments between the City, the Government of Yukon, Ta'an Kwäch'än Council, and Kwanlin Dün First Nation.	The proposed development does not conflict with this policy.
15.17.13	In acknowledgement of the challenges associated with greenfield land development, including the high cost of capital and operational required (e.g., likely over $550M capital costs for either the North or South Growth Area), residential development within existing neighbourhoods, the Downtown, and in Urban Centres is preferred	The proposed development does not conflict with this policy.
15.17.14	The City will annually review population projections and the status of other developments with the Government of Yukon to inform demand and timing of the development of the South Growth Area.	The proposed development does not conflict with this policy.
15.17.15	As part of the planning for the South Growth Area, the City will encourage the redevelopment of the McLean Lake Quarries to allow for a broad range of land uses that are deemed suitable in that area.	Proposed development does not conflict with this statement.

3.2 South Growth Area

The South Growth Area, an area approximately 898 ha, is identified in the OCP as the priority for development. Located south of the Copper Ridge neighbourhood towards McLean Lake, the South Growth Area is one of two areas within the City that will support significant future development.

In 2017, pre-feasibility study was completed to determine the general suitability of the South Growth Area for urban development based on discipline-specific assessments, servicing feasibility, biophysical characteristics, recreational usage and values, heritage resources and values, and land use suitability. This report provided a general overview of the site to determine the next steps and development feasibility. The pre-feasibility study determined that the development in the South Growth Area is technically and economically feasible, but additional efforts would be required.

The Government of Yukon, Ta'an Kwäch'än Council, KDFN, and the City of Whitehorse signed a Memorandum of Understanding to conduct additional feasibility studies to evaluate the necessary details for residential development of the area. Throughout the next few years, work will include:

- Traditional Knowledge and Traditional Land Use Study
- Geophysical survey
- Wildlife camera and track surveys
- Rare plant and fish habitat survey
- Servicing assessments
- Transportation assessments

Efforts completed from these studies will continue to inform the development of the South Growth Area and ultimately be described in a Master Plan.

Highland Estates is respectful of the ongoing effort for the South Growth Area and will provide input where necessary. Due to the unknown timing of the planning process and understanding of the unique constraints of the Development Parcel, Highland Estates has prepared a Master Plan separate from the South Growth Area.

3.3 Planning Process to Date

As the planning for the Development Parcel has moved ahead, the following steps have been completed:

- City of Whitehorse approved OCP amendment to allow Development Parcel to be developed as for Country Residential use (August 2024)
- Phase #1 Community engagement meetings (March 2025)
- Master Plan Project Proposal accepted by City of Whitehorse (April 2025)
- Phase #2 Community and stakeholder engagement meetings (May 2025)
- Phase #3 Community engagement (May 2026)
- Phase #4 Community engagement meeting and stakeholder engagement meeting (August 2026)
- Approval of the Highland Estates Master Plan (TBD)

3.4 Community and Stakeholder Engagement

In 2024, an OCP amendment to amend the designation of the Development Parcel to Residential Country was brought to City Council. A public hearing was held as part of this process, serving as the initial engagement on this project and an opportunity to introduce the project and gather feedback from community members.

As part of the required engagement of the Master Plan, four public engagement sessions are to be held along with direct communication with Kwanlin Dün First Nation and Yukon government Land Development Branch. Comments from the public have been reflected in the Master Plan as possible and appropriate.

The public will also have an opportunity to comment on this project during the public hearing for zoning amendment. Additional information about the engagement approach and summaries are provided in Appendix G and H. Each engagement session has been summarized in the table below.

Table 4 – Engagement session summary

Session	Date	Location	Purpose
Open House #1 Initial engagement and project introduction	Completed (March 2025)	Radar Apartment Lobby	• Public open house
Open House #2 First round of engagement on draft concept	Completed (May 2025)	Radar Apartment Lobby	• Public open house • Stakeholder outreach
Open House #3 Engagement on draft concept	Completed (May 2026)	Radar Apartment Lobby	• Public open house • Stakeholder outreach
Open House #4 Present final concept and Master Plan	Planned for August 5, 2026	Radar Apartment Lobby	• Public open house • Stakeholder outreach

4 Development Plan

Highland Estates has been planned as a 16 unit development integrated into the area's natural topography and existing vegetation. The overall goal of Highland Estates is to provide moderately-sized country residential lots while benefiting from the convenience of amenities and services available in the community's core.

The vision of Highland Estates is to:

- To provide 16 new country residential unit, a housing form that is limited in Whitehorse.
- To increase housing in the City without the need for costly infrastructure and long-term maintenance.
- To use lands with significant topographical constraints that would otherwise be challenging for traditional urban density development.
- To reduce the construction area to preserve the natural vegetation and existing grades.

Land Use Policy for Highland Estates

4.1 Low-density residential uses shall be the predominant land use.

4.2 The goal is to provide an alternative housing option made up of country residential lots with private servicing.

4.3 Develop land in a manner that reduces the need for municipal improvements and long-term maintenance.

4.4 Use the Development Parcel efficiently, recognizing the area's considerable development constraints.

4.5 Use lands in a way that minimizes conflicts with future and adjacent areas.

4.1 Concept Plan

The Development Parcel is characterized by its vegetation and natural amenities, and the layout has been designed to work well with the site conditions and existing residential uses. Consideration has also been given to how the proposed development can be integrated into the future planning of the South Growth Area.

Highland Estates has been designed to reflect the market demand for larger residential lots while minimizing pressure on City of Whitehorse infrastructure. This proposed development will provide residents with privacy and proximity to natural areas.

Full development of Highland Estates will include 16 units, with a private roadway and a common space that will be left in a natural state. A majority of existing trees will also be preserved in areas with challenging grades. The proposed concept is shown in Figure 4 – Concept Plan. The Development Parcel is 9.88 ha (24.41 ac).

Table 5 – Development Parcel Summary

Use	Hectares	Acres
Building Envelope	8.11	20.03
Roadway (Private)	*1.48*	*3.66*
Open Space (Private)	*0.29*	*0.72*
TOTAL	9.88	24.41

4.2 Topography

Housing types anticipated for Highland Estates can include all forms of single-family homes, with or without attached garages and with or without walkout basements. This range of housing types will provide flexibility for potential residents to build a home that suits their needs and preferences.

As shown in Figure 4 & 5 – Concept Plan, the existing topography of the Development Parcel is high in the west and slopes down towards the east. These grades will create two distinct housing options, west and east of the central private road. In the west, a drive-under-house style is preferred to minimize the overall grading and reduce the driveway grades. For the east, it is envisioned that houses will have walkout basements to utilize the slope. An example of each housing type is shown below.

Single Family Drive Under Home

Single Family Walkout Home

4.3 Future development and connections

Highland Estates falls within the City's South Growth Area, an area identified in the Whitehorse OCP as a growth area for a large-scale serviced residential neighbourhood. The Government of Yukon, Ta'an Kwäch'än Council, Kwanlin Dün First Nation, and the City of Whitehorse are working together to evaluate the potential for development and necessary details. The results of these ongoing studies will be used to help shape the planning and future development of the South Growth Area.

As the specific design and layout of the South Growth Area neighbourhood are still many years away, there are no details yet on land use zones or how the area may be built out. It is understood that the

South Growth Area will be primarily residential, which would be compatible with country residential in Highland Estates.

The Concept Plan for Highland Estates was designed based on the unique constraints of the site and assumptions about the future of the adjacent parcels. Highland Estates recognizes that future planning will still need to be completed and has made every effort to minimize potential conflicts. The proposed development will not negatively impact planning, land use transitions or future use within the South Growth Area. Highland Estates will work with the City of Whitehorse to ensure that trails, parks, playgrounds or community amenities will best accommodate future residents of the South Growth Area.

Access within Highland Estates has been carefully considered. The north-south road in the neighbourhood has been designed so that, in the future, it could provide access to the surrounding Kwanlin Dün parcel to ensure a connected and practical transportation network. The landowner of both Highland Estates and Lobird Estates is committed to being an active participant in the South Growth Area and working with the other developers and landowners throughout the planning process so that the final plans results in a livable neighbourhood.

4.4 Bare Land Condominium

Due to limited direct access to a public roadway, Highland Estates will be established as a bare land condominium project. The Development Parcel will consist of 16 bare land condo units, and a private roadway and open space, which will be commonly owned. The use of a bare land condominium will allow for an alternative to the traditional provision of services and supports a development that will rely on private infrastructure. The area will offer enhanced aesthetics through explicit architectural controls and development requirements related to the building pocket and leaving existing vegetation. Though different from a traditional fee simple development, this area will seem very similar to a traditionally developed neighbourhoods. Common properties will be owned and maintained by a Condominium Corporation. Maintenance of the roadway and common space, snow removal, garbage pickup, and landscape maintenance will be coordinated through this corporation.

A bare land condominium in the Yukon, as defined by the Condominium Act, is a type of condominium where the units are defined by land boundaries rather than by the buildings on them. This means individual homeowners own the land their property sits on, but also share ownership and responsibility for common areas like roads and amenities. The Developer must provide proof that each unit has been registered as part of the Bare Land Condominium before a title can be transferred to a purchaser.

The condominium corporation is responsible for maintaining the common property and common assets, including managed real property. The corporation will divide the costs of managed real property as part of the affected unit owner's monthly condominium fees. If an easement or a restriction limits the use of common property or common assets, a special resolution of eligible voters is required. Common maintenance, at minimum, will include the upkeep of the private road, snow removal and garbage.

Each unit, together with the unit owner's interest in any common property and any managed real property, is subject to assessment and taxation. As well, any common asset consisting of real property, other than managed real property, is subject to assessment and taxation.

In the case of a bare land condominium, the corporation is not required to insure any building or other improvements on any bare land unit, except managed real property, regardless of when or by whom they were built.

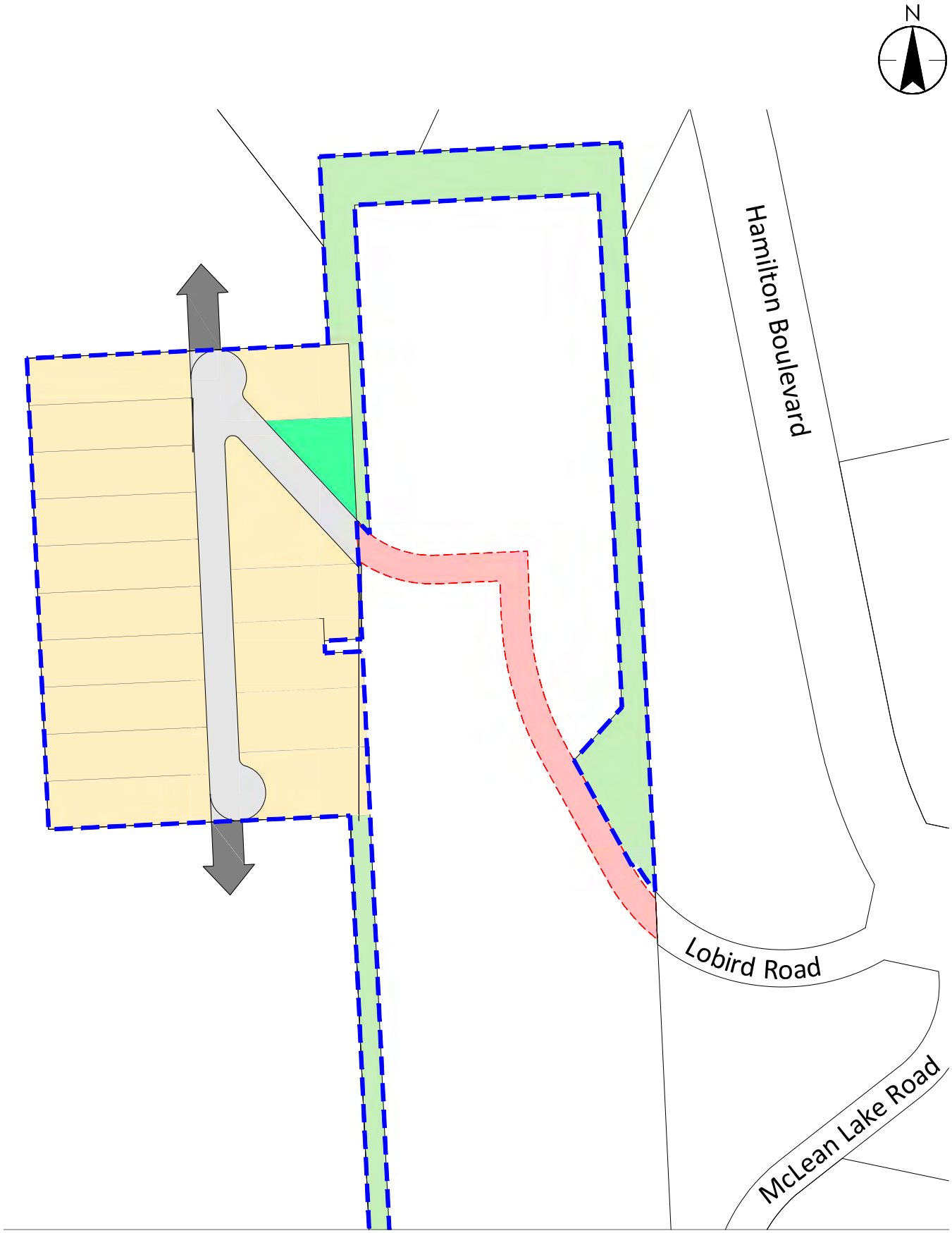
4.5 Zoning

Before development can proceed in the Development Parcel, the zoning of the parcel must be amended. The lot is currently zoned RP – Residential Mobile Home Park. The RC2 – Country Residential 2 zone has been selected to provide country residential options on medium-sized parcels. With a proposed minimum building envelope size of 0.5 ha for each dwelling, RC2 land use is reflective of other similar country residential neighbourhoods in Whitehorse. These smaller acreages provide rural-style living, which is appealing to many residents and is something that is otherwise not being offered.

This development is being planned to aligned with the intent of RC2 – Country Residential 2 zoning. Through detailed design, an appropriate house pocket, proper drainage, and driveway location will be identified for each building envelope as part of the development permit application. Further details for each unit will be provided at the time of the Development and building permit application.

Under the Zoning Bylaw, the specific zoning regulations are applied to the entire lot, and not to the bare land condo parcels that make up the lot. Under this interpretation, any multiple-unit development is considered to be multiple unit housing, which is not currently permitted in the RC2-Country Residential 2 zone.

For this reason, Highland Estates proposes a Special Modification to the RC2 – Country Residential 2, which has been reviewed with City staff. The creation and approval of the Special Modification will be completed as part of a future Zoning Bylaw Amendment.



Not to Scale

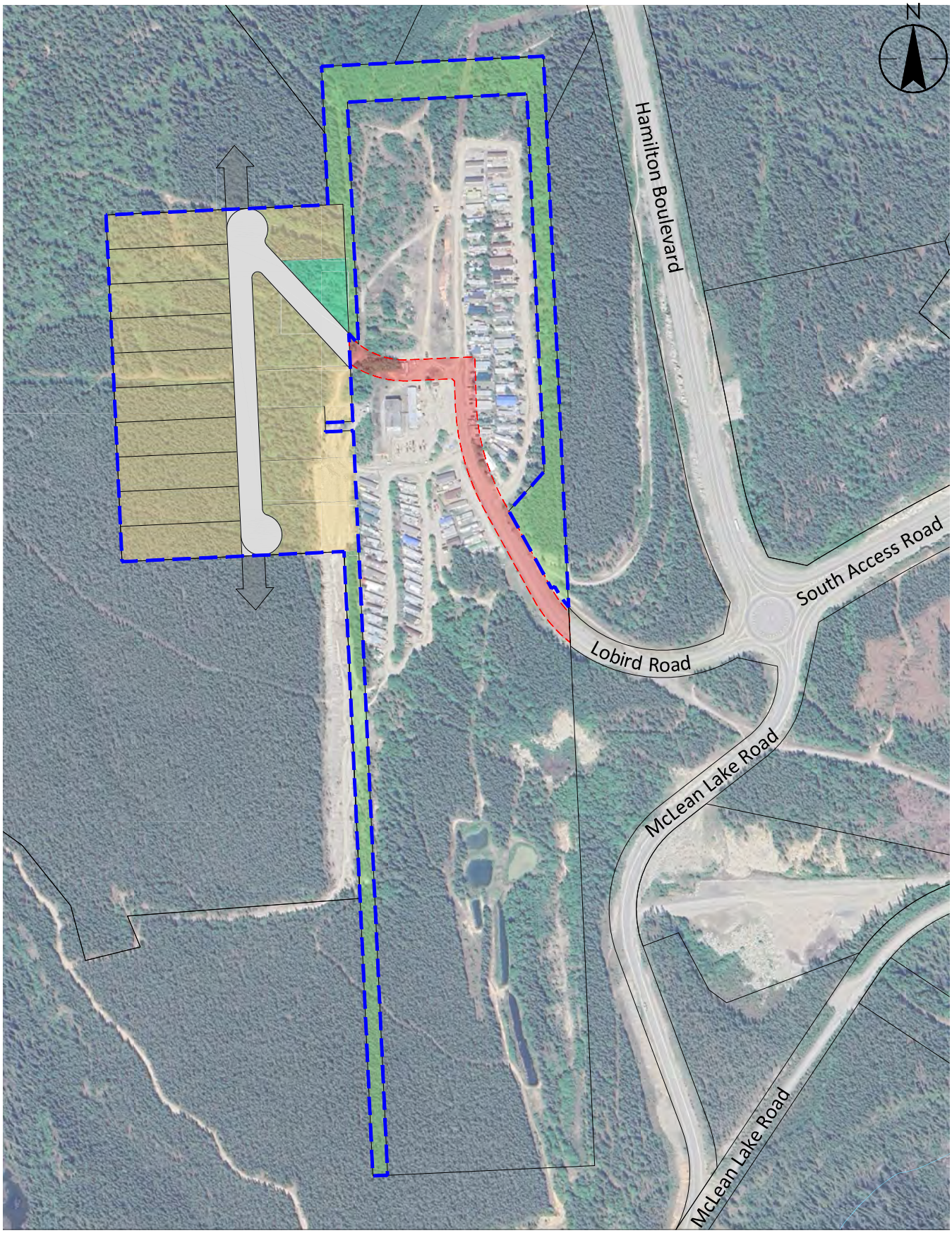
April 20, 2026

Legend:
- Residential - CR2
- Public Use
- Common Space (Natural)
- Common Space (Roadway)
- Future Potential Roadway - Offsite
- Access Easement
- Development Parcel

Stantec

Figure 4
Concept Plan
Highland Estates

Updated 26/04/20, 1:19 PM;By: SSTAFFORD
C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG



Not to Scale

April 20, 2026

Legend:
- Residential - CR2
- Public Use
- Common Space (Natural)
- Common Space (Roadway)
- Future Potential Roadway - Offsite
- Access Easement
- Development Parcel

Stantec

Figure 5

Concept Plan with Aerial

Highland Estates

Updated 26/04/20, 1:51 PM;By: SSTAFFORD

C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG

Not To Scale

April 20, 2026

Legend:
Residential - CR2
Public Use
Development Parcel

Figure 6
Zoning
Highland Estates

Stantec

Updated 26/04/20, 1:19 PM;By: SSTAFFORD

C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG

5 Open Spaces and Community Amenities

Open Space Policy for Highland Estates

5.1 A dedication of 10% Public Use land will be dedicated via land or cash-in-lieu.

5.2 Dedicate Public Use land that will serve as active and passive open space for residents and adjacent areas.

As per the Yukon Municipal Act, 10% of the Subdivision Boundary shall be dedicated for Public Use. Public Use Land Dedication will be used for recreation amenities, trails, and buffers between land uses.

5.1 Existing Open Space

Currently, there are no formal trails, formal open space, or amenities in the vicinity of the Development Parcel. As the South Growth Area Plan progresses, Public Use lands and community uses will be further defined.

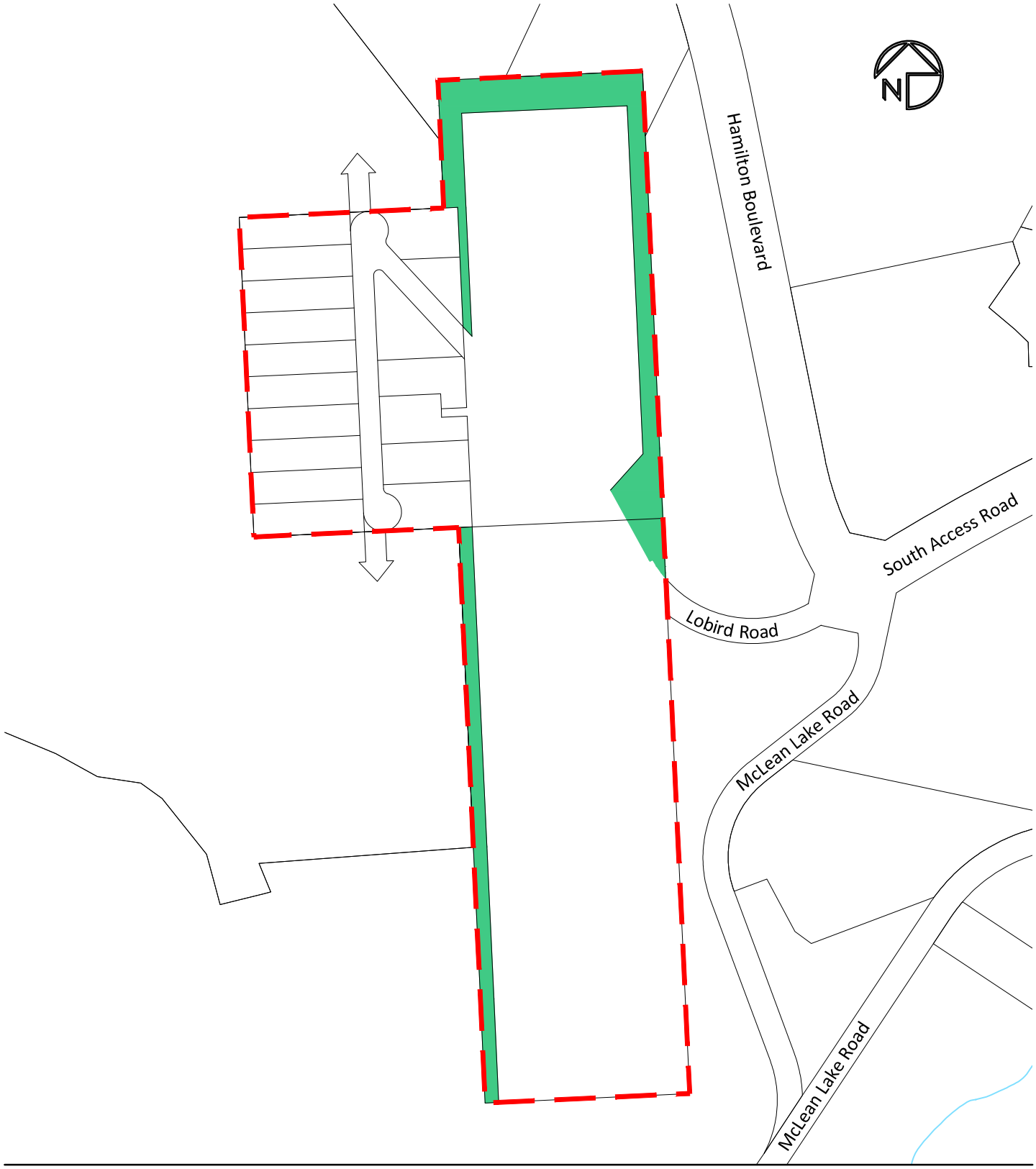
5.2 Public Use Dedication

Prior to the subdivision of Highland Estates, the Developer is required to consolidate Lot 1207 QUAD 105D/11 and Lot 1206 QUAD 105D/11. As such, the Developer shall provide Public Use Land Dedication for the total subdivision and consolidation area, which is 38.96 ha. A dedication of 3.90 ha is required, and will be zoned PR – Parks and Recreation, as shown in Figure 7.

The Public Use lands that are shown are intended to provide future access and trail connections, and will be integrated into a larger open space system within the South Growth Area. As part of the subdivision process and future South Growth Area planning, the Developer will collaborate with the City to determine specific use and amenities for this space.

Table 6 – Public Use Land Dedication

Land Use	Hectares	Acres	Required Public land Use Dedication (10%)
Lot 1207 QUAD 105D/11	22.26	55.01	2.23 ha/5.50 ac
Lot 1206 QUAD 105D/11	16.70	41.26	1.67 ha/4.13 ac
Total	**38.96**	**96.27**	**3.90 ha/9.63 ac**



Not to Scale

April 20, 2026

Legend:
PR - Parks and Recreation (Public Use)
Lobird Ownership Boundary

Figure 7
Public Land Use
Highland Estates

Stantec

Updated 26/04/28, 9:23 AM:By: SSTAFFORD

C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG

6 Transportation Network

Transportation Policy for Highland Estates

6.1 The developer is responsible for all costs associated with internal roadways.

6.2 All roadways will be private and the responsibility of the Condominium Corporation.

6.3 A Development Permit Application, showing grading and roadway improvements will be submitted concurrently with the Subdivision Application.

6.4 Configuration and selection of streetlights will consider measures to limit light pollution.

6.5 The private roadways could be connected into future adjacent areas.

The primary access to this development is envisioned to be a private roadway extension off Lobird Road, through Lobird Estates. All new roads are proposed to be privately owned, given the Development Parcel's location with limited access to public roadways.

With the South Growth Area planning and construction adjacent to the Development Parclel still many years away, existing development of Lobird Estate and natural constraints in the area, the Developer does not have any options for a safe and efficient roadway that meets all City standards. All other options for access have been explored. It is understood that private roadways are uncommon in Whitehorse, but is necessary for this unique situation.

At the time of the subdivision and development permit application, the Developer will prepare additional details, showing dimensions and standards of the private roadway.

A Transportation Impact Assessment has not been prepared due to the low traffic volumes that will be generated from the proposed additional 16 units. In the future, Lobird Estates will be responsible for the impact assessment should an additional subdivision be proposed within the manufactured home park.

6.1 Proposed Access

Access to Highland Estates will be through Lobird Estates, branching westward up the slope before turning south and running parallel to the incline. A new intersection is proposed within the existing road network to provide access to the new development, shown in Figure 8 – Transportation Network. While private, the private road will utilize the City of Whitehorse 8.0 m Rural Local Street standards within the 25 m cross section, shown in Figure 9 – Private Roadway Cross Section. At the ends of the roadway are cul-de-sacs to allow for proper turnaround and emergency vehicle movements.

In the future, should there be an opportunity or need to convert the private road to public, the cross section would already meet City standards.

The proposed roadways have the following features:

- A 25 m wide cross section
- Road width of 8 m, 7 m wide crowned bituminous driving surface
- A 0.5 m shoulder on each side

- Ditches on along the west boulevard, with a proposed 3:1 slope and a 0.5 m bottom.

Water from the Development Parcel shall be collected in the proposed ditch. In this way, the road will be designed to mitigate water crossing property lines. When the parcels are developed and the driveway location is established, a Corrugated Steel Pipe culvert parallel to the ditch should be installed by the property owner under the driveway access to maintain flow.

Tetra Tech recommended the following roadway structure in their November 2023 Geotechnical Evaluation (Tetra Tech, 2023):

- 150 mm of 20 mm crushed basecourse
- 200 mm of 50 mm crushed sub-base
- 600 mm of non-frost susceptible pit run for subgrade improvement
- A subgrade surface that has been properly prepared to ensure stability.

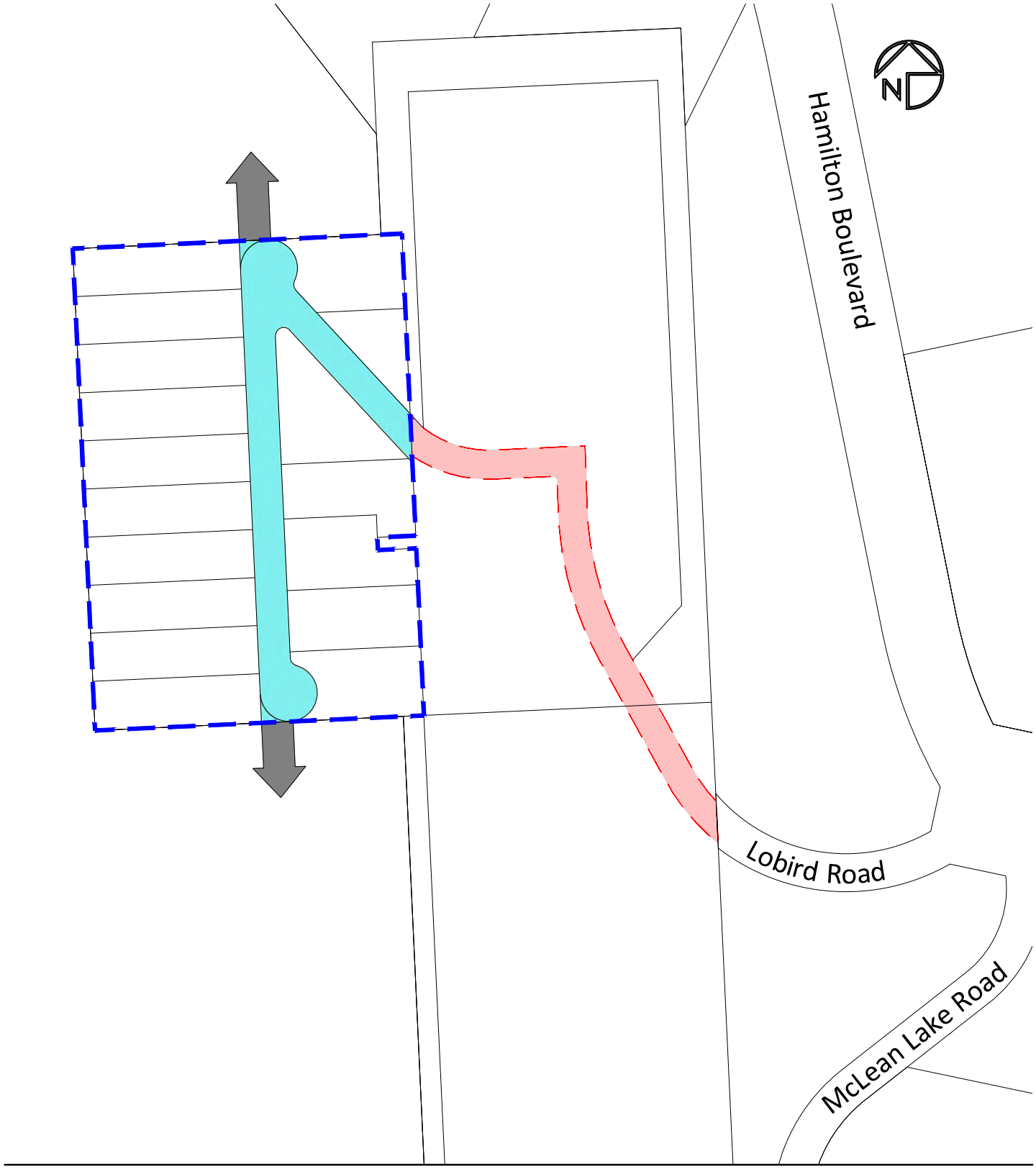
6.2 Existing Roadway Upgrades

As detailed above, access to the Development Parcel is via Lobird Estates. A new intersection is proposed at the location of the existing internal roadway and the new access to the development. It is proposed that this be a stop-controlled intersection. To support the development of Highland Estates, the roadway within Lobird Estates will be upgraded to better define the roadway, including street trees, and improved drainage. All improvements will be completed at the same time as the Highland Estates construction.

6.3 Access Agreement and Maintenance Agreement

To ensure permanent access to Highland Estates, an Access and Maintenance Agreement will be established to outline the responsibilities and rights of parties regarding the upkeep and use of the roadway between Lobird Drive and the Development Parcel. Such agreements are essential for preventing conflicts and ensuring the roadway remains safe and functional for all users. This agreement will specify routine and emergency maintenance, snow removal, grading, repairs, and how costs will be shared among the parties. It also defines access rights, ensuring that Lobird Estates, Highland Estates, and the City have legal permission to use the roadway for ingress and egress. The agreement may also include provisions for dispute resolution, insurance requirements, and terms for modification or termination.

A draft Access and Maintenance Agreement will be submitted with the Subdivision Application and registered onto titles.



Not to Scale

April 20, 2026

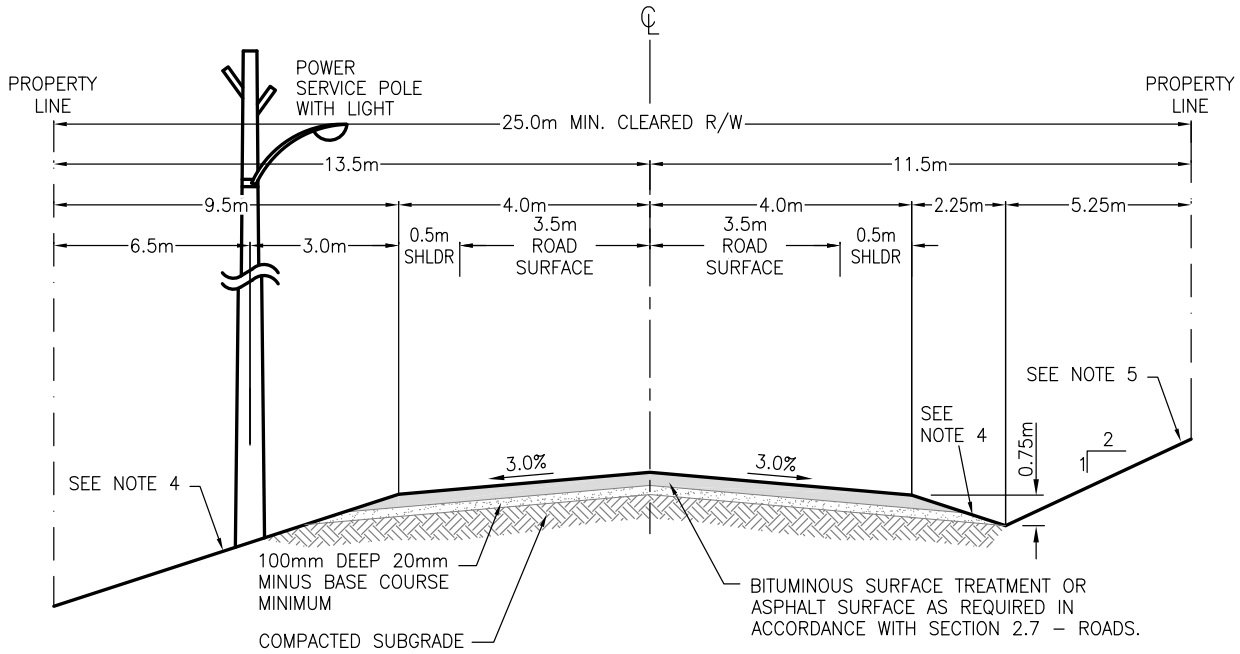
Legend:
- Private Roadway
- Access Easement
- Future Potential Roadway - Offsite
- Development Parcel

Figure 8
Roadway Network
Highland Estates

Stantec

Updated 26/04/28, 8:58 AM:By: SSTAFFORD

C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG



NOTES

1. MINIMUM ROAD STRUCTURE INDICATED – ROADWAY TO BE DESIGNED BASED ON SITE SPECIFIC SOIL CONDITIONS AND TRAFFIC LOADING. GRAVEL TO BE COMPACTED TO 98% STANDARD PROCTOR DENSITY.
2. SUBGRADE COMPACTED TO 98% STANDARD PROCTOR DENSITY.
3. DITCH DEPTH = 0.75m MIN. WATER FROM THE ROADWAY SHALL NOT DRAIN ONTO PRIVATE PROPERTY.
4. ROAD SIDE SLOPES FOR DEPTHS OF EMBANKMENT, TO BE DESIGNED BY A GEOTECHNICAL ENGINEER. RECOMMENDED SIDE SLOPES:

DEPTH OF FILL	SIDE SLOPE (MIN)
0–2	3:1
2.0–3.0	2:1
>3.0	1.5:1 (GUIDE RAIL AS REQUIRED)

WHERE GUIDE RAIL IS REQUIRED, ROAD IS TO BE WIDENED AS PER DWG E1.2

5. BACK SLOPES TO BE DESIGNED BY A GEOTECHNICAL ENGINEER. RECOMMENDED BACK SLOPE 2:1
6. MINIMUM CUL DE SAC RADIUS 14.0m
7. RTAC CLASSIFICATION RLU–50.
8. EASEMENTS REQUIRED FOR POWER POLE ANCHORS.
9. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
10. POWER POLE LOCATION APPROXIMATE ONLY – EXACT LOCATION DEPENDENT ON SIDE SLOPES AND TOPOGRAPHY.
11. DISTANCE FROM PROPERTY LINE TO POWER POLE IS TO BE 8m MIN FOR TRIPLE PHASE AND 6m MIN FOR SINGLE PHASE. ROAD ALIGNMENT IS TO BE SET BY MIN. CLEARANCES AND CONSTRAINTS DUE TO TOPOGRAPHY.

Whitehorse
THE WILDERNESS CITY
Engineering Department

8.0m RURAL LOCAL STREET SECTION
25.0m RIGHT OF WAY

DATE: JANUARY, 2020

STD DWG
C6.0

Stantec

Figure 9
Private Roadway Cross Section
Highland Estates

7 Servicing

Servicing Policy for Highland Estates

7.1 Each parcel will have private services.

7.2 The Developer will be responsible for all servicing cost.

7.3 All infrastructure will be private, reducing the need for City maintenance.

7.4 A Development Permit Application, showing grading and roadway improvements will be submitted concurrently with the Subdivision Application.

7.5 Engineering and servicing details will be prepared as part of the Development Permit Application.

7.6 Site grading shall direct stormwater runoff into existing storm systems.

7.7 Individual parcel owners shall be responsible for additional hydrogeological and geotechnical investigations before the submission of a Building Permit Application.

7.8 In steep areas, alterations to the natural topography and vegetation should be minimized.

7.9 The Development shall demonstrate feasibility of 0.5 ha units via site-specific investigation. Should feasibility not be demonstrated to the satisfaction of the City, the minimum unit size of 1.0 ha would be required.

Parcels within the Development Parcel are proposed to be privately serviced with water cisterns, septic fields, or pump-out tanks. Municipal services are not currently adjacent to the Development Parcel and could be some time before any connections are available.

Each property owner will be required to determine parcel-specific water and wastewater systems by a qualified installer. Each unit owner will be responsible for selecting a system based on parcel conditions and personal preference. All servicing systems shall meet City regulations, Yukon Environmental Health Services requirements as well as the design specifications for sewage disposal systems set out by the Yukon government. Setbacks have been shown in Figures 10 and 11 – for typical private servicing.

A preliminary site servicing assessment was completed to review the Development Parcel's servicing feasibility, including water, sanitary, storm, and power and telecommunications (utility) services. Stantec consulted with the utility providers to review servicing capacities and capabilities and reviewed existing background documents.

The future subdivision and development permit application process will require additional assessments by a relevant designated professional to confirm that each proposed bare land unit parcel, less than 1 ha in size, can provide long-term on-site servicing. If future assessments indicate that the Plan Area is unable to support on-site servicing for a total of 16 units, the overall density and location of bare land condo units may need to be reduced or altered.

7.1 Water

Highland Estates will be serviced via water cisterns. Each parcel will be required to use a cistern, and this requirement will be registered on title. The owner is fully responsible for the design, approval, construction, operation and maintenance of the water cistern.

Each parcel will select a cistern based on the size of the unit, number of users, and individual needs. All water cisterns should be potable water grade and should be installed according to all applicable regulations and guidelines.

7.2 Sanitary Services

Each parcel in the Development Parcel is proposed to have a private septic system or a pump-out sewage tank. It is understood that the existing Lobird Estates lagoon is at capacity and cannot accommodate the new development.

According to Tetra Tech's November 2023 Geotechnical Evaluation, the proposed 0.5 ha parcel size provides sufficient separation between drinking water wells and septic fields. In the evaluation, shallow bedrock throughout the north half of the Development Parcel was identified, which may constrain the design and installation of the traditional septic field systems. Nonetheless, in areas without this constraint, which have adequate soil coverage, they determined that the till soils are considered an appropriate 'acceptable soil' for a traditional septic field. Areas with shallow bedrock are encouraged to utilize an engineered system (ie. raised bed) or pump-out sewage tank.

The construction of any private septic system will need to follow the Yukon Public Health and Safety Act and the associated Design Specifications for Sewage Disposal Systems. The preferred septic system is the responsibility of the property and will be determined on a lot-by-lot basis by a qualified professional. Soil conditions shall be determined at each property by the individual owners during the development of the lot. A test pit at or near the location of the proposed septic system is the recommended method to determine soil conditions. Soil conditions that are not suitable for the installation of a soil absorption system (i.e., septic field) include fine-grained soils such as silt and clay because of their very slow percolation rate and impervious layers beneath the surface of the ground, including bedrock, permafrost, or thick deposits of high plastic clay. If an impervious layer is present, there shall be at least 1.2 m of suitable coarse-grained receiving soils from the bottom of the soil absorption system to the impervious layer. If suitable coarse-grained receiving soils are not present or are not able to be installed to the required thickness above an impervious layer, septic holding tanks are preferred over septic fields. Details of the private septic system will be presented as part of the Building Permit Application.

Specific design and construction guidelines for septic tanks and fields can be found in Design Specifications for Sewage Disposal Systems—*A Guide to Their Design and Maintenance*, Government of Yukon, updated March 2022. The figures below demonstrate the setback required for the septic system.

The future subdivision and development permit application process will require detailed information related to the septic field/tank location for each bare land condo unit and the required setbacks, backup septic field location, and potential water cistern locations.

Updated 25/08/20, 9:28 AM;By: SSTAFFORD

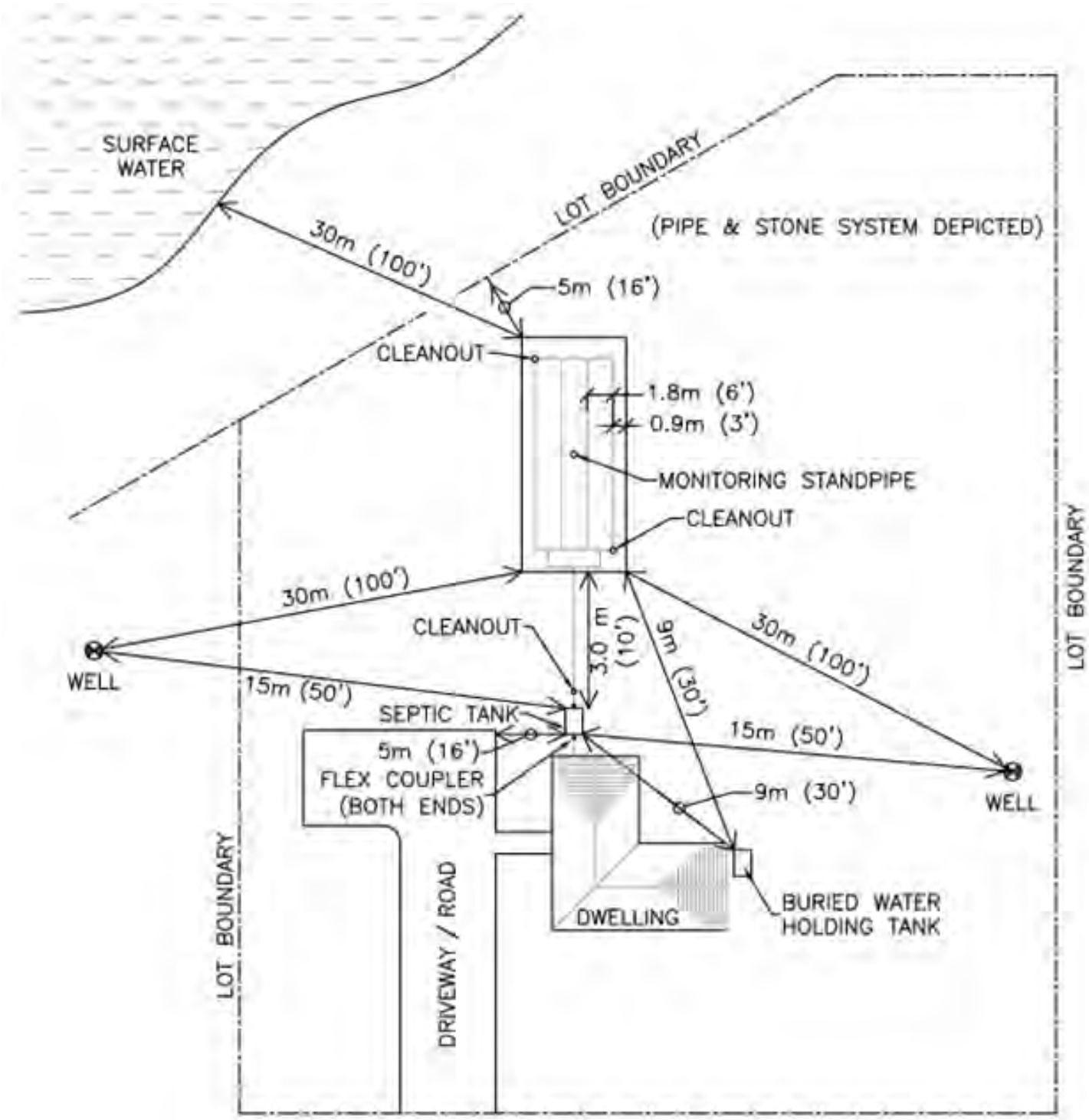


Figure Source: Design Specifications for Sewage Disposal Systems – A Guide to their Design and Maintenance, Government of Yukon, Updated June 2021)

C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_MF.DWG

Figure 10

Typical Septic and Water Setback

Highland Estates

Stantec

NOT TO SCALE

December 10, 2025

Figure 11

Septic and Water Setback

Lobird Whitehorse

Stantec

Updated 25/06/25, 11:48 AM;By: SSTAFFORD
C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_POCKET DETAIL.DWG

7.3 Stormwater

Stormwater management in the new development should take into consideration the slopes of the area, the parcel size, and the country residential neighbourhood classification. To achieve appropriate drainage, ditches will be used to collect and direct water; some stormwater will naturally percolate into the soil as it will be left in its existing natural state. Stormwater management is to be considered through detailed design and will further inform how drainage is handled onsite. The access road within the Development Parcel from Lobird Road traversing up the hill is proposed at approximately 12% grade, and erosion mitigation measures will be considered for the ditches as part of detailed design.

Stormwater will be directed overland, through the existing Lobird Estates and ultimately to ponds in the south. Access and maintenance agreements between the Highlands Estates and Lobird Estates will be established to ensure access to drainage routes and maintenance considerations. Overland drainage is shown in Figure 12 – Overland Storm Drainage.

7.4 Fire Protection

As an unserviced Country Residential development, fire hydrants will not be available. The Development Parcel is understood to be within the City of Whitehorse Fire Response Boundary (Geomatics Yukon, 2023). The distance from the Development Parcel and Firehall No. 1 is approximately 6.6 km. The private access road has been designed with cul-de-sacs, as per City standards, to allow for proper turnaround and emergency vehicle movements.

In addition to the fire protective services, appropriate separation of units is required to help limit the spread of fire from house to house. Each owner will be encouraged to utilize fire-smarting techniques around the building and envelope to mitigate the risk of fire spreading. Each homeowner is encouraged to review fire protection construction methods, including using fire resistant roofing materials, and requirements to obtain insurance based on the fire response level of service.

Fire-smarting will be required surrounding each dwelling, consistent with City guidelines, including the Zoning Bylaw and the information on the City's FireSmart webpage. This will be especially important in the immediate zone (within 1.5 m of the house) and in the intermediate zone (between 1.5 m and 10 m from the house). Shared greenspaces will be FireSmarted as part of development.

7.5 Parcel Grading

To review the constructability of the Development Parcel, an initial grading exercise was completed to visualize the potential parcel and road grades. While there are some steep locations, the intent is to grade the Area, considering City standards, best practices for home construction, and preserving the existing trees where possible. The Developer will be responsible for the construction of the roadway and impacted areas, with onsite grading the responsibility of each property owner. As part of detailed design, the maximum building pocket and proposed grades will be presented and registered on title.

Roadways within the site are generally graded from 0.5% to 12%. A minimum cross-slope of 2% is proposed.

The conceptual grading plan is based on proposed driveway slopes of 10%. While the City of Whitehorse Standard Services Manual noted desired driveway grades of between 2% - 6%, increased slopes are common, particularly on rural residential developments.

Tetra Tech's Geotechnical Evaluation identified shallow bedrock throughout the north half of the site. However, the quantity or necessity of bedrock removal cannot be predicted at this stage due to a lack of an outline of possible shallow bedrock areas and information on bedrock depth in the grading area.

At this time, additional test pits and field review are required to understand the extent of shallow bedrock within the north half of the site. An initial earthworks review has been completed and assumes that a net of approximately 22,500 cubic meters of cut is projected. It is expected that there will be cut (north and west portions of site) to fill (south and eastern portions of site) operations for the Development Parcel. Understanding the extent of bedrock will further inform the grading plan and subsequently the cut-fill volumes onsite. The current grading plan, shown in Figure 13 – Proposed Parcel Grading, is considered conceptual at this time and will be refined throughout the detailed design and development permit stage of the project. A cross-section of the Development Parcel is shown in Figure 14 – Parcel Cross Section.

7.6 Electrical and Telecommunications Utilities

Correspondence was conducted with utility providers in March 2025. Above ground power and communication lines are located within the Development Parcel providing power, phone, and internet services from ATCO and NorthwesTel.

Following the subdivision application, the developer will work directly with ATCO and NorthwesTel to prepare design drawings.

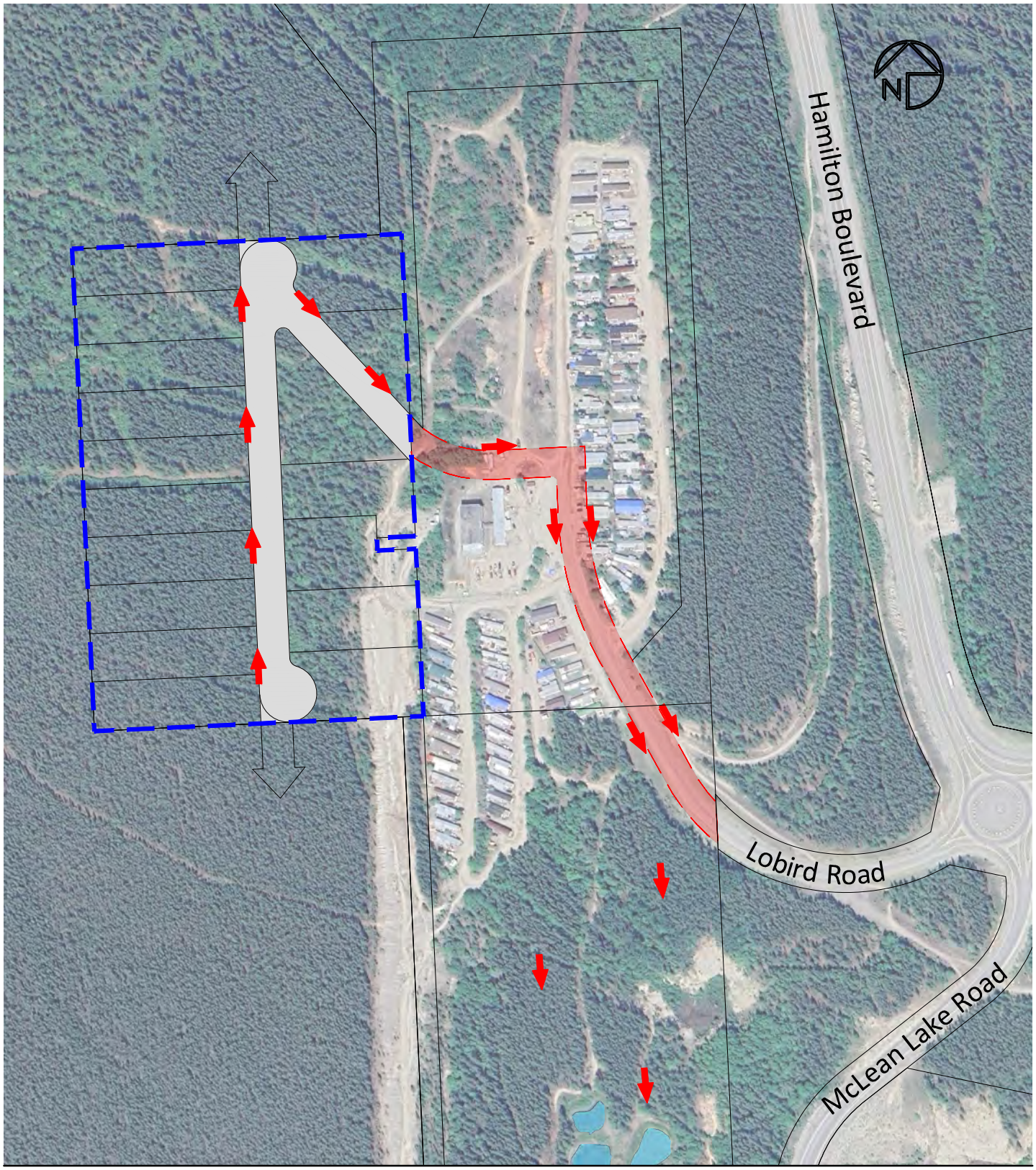
7.6.1 ATCO

ATCO currently provides service to the existing Lobird Estates mobile-home park with a 3-phase high voltage overhead powerline, following the proposed road alignment. Existing aerial services come off of Hamilton Boulevard to the north of Lobird Estates.

ATCO confirmed that there would be no off-site upgrades required to accommodate the new load. It is expected that the development will be serviced with overhead powerlines. A 6.2 m strip of brushing would be required on either side of the powerline, located within easements with each parcel.

7.6.2 NorthwestTel

Lobird Estates is serviced by coaxial and copper cables, with no fibre optic, for internet and phone services. To optimize budgets, it was proposed that the new NorthwestTel service be installed in conjunction with the new ATCO power service using overhead poles. The existing cable infrastructure may require upgrades, which is the responsibility of the Developer. Design and installation of the service installation may take up to six months or longer after application submission.



Not to Scale

April 20, 2026

Legend:
- Overland Drainage Route
- Roadway
- Roadway/Access Easement
- Existing Ponds
- Development Parcel

Figure 12
Overland Drainage Plan
Highland Estates

Stantec

C:\USERS\SSTAFFORD\STANTEC\TRANSPORTATION - BRITISH COLUMBIA - PROJECT WORKSPACE\144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_LW.DWG
Updated 26/04/28, 8:58 AM:By: SSTAFFORD

Stantec

Proposed Parcel Grading

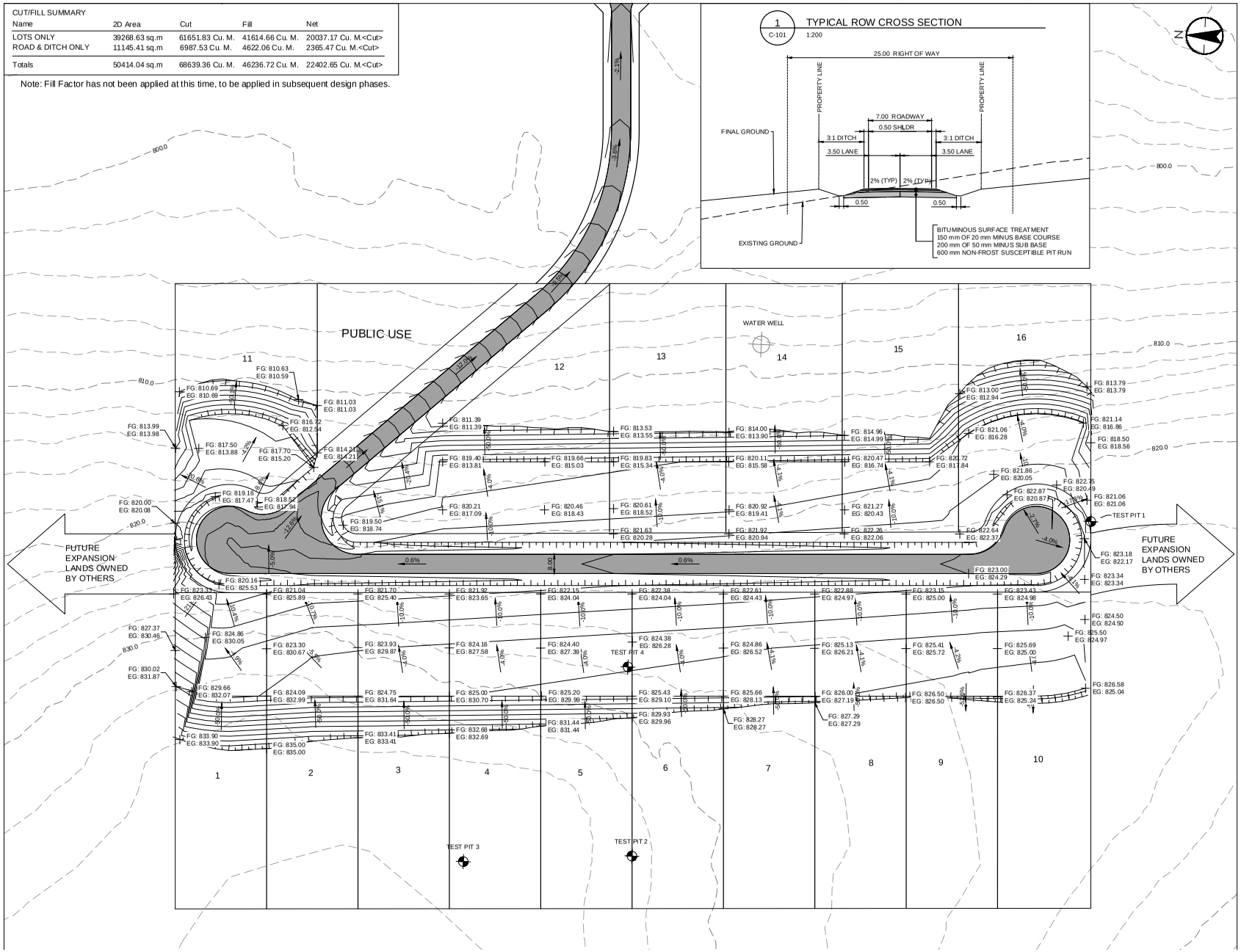
Highland Estates

Figure 13

CUT/FILL SUMMARY

Name	2D Area	Cut	Fill	Net
LOTS ONLY	39268.63 sq.m	61651.83 Cu. M.	41614.66 Cu. M.	20037.17 Cu. M.<Cut>
ROAD & DITCH ONLY	11145.41 sq.m	6987.53 Cu. M.	4622.06 Cu. M.	2365.47 Cu. M.<Cut>
Totals	50414.04 sq.m	68639.36 Cu. M.	46236.72 Cu. M.	22402.65 Cu. M.<Cut>

Note: Fill Factor has not been applied at this time, to be applied in subsequent design phases.



Updated 25/08/20, 9:28 AM;By: SSTAFFORD

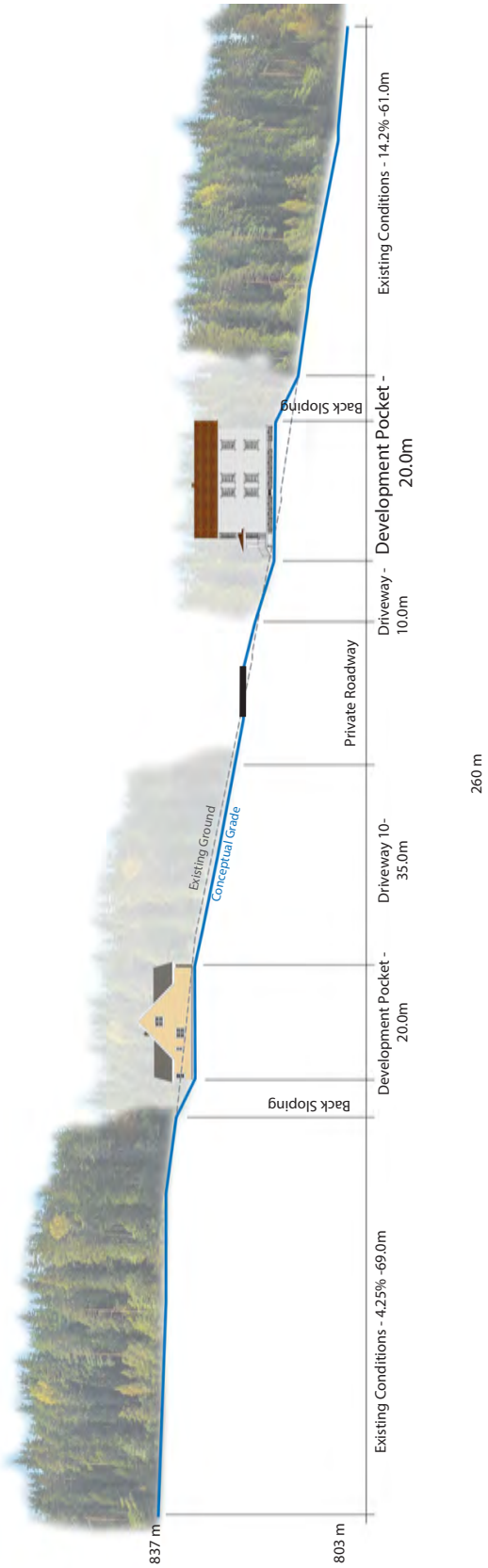


Figure 14

Parcel Cross Section

Highland Estates

Stantec

C:\USERS\SSTAFFORD\STANTEC\BC 1449 - 144903382_LOBIRD_PLANNING\PLANNING\CONCEPT PLAN\WHITEHORSE_MF.DWG

8 Implementation and Phasing

Implementation and Phasing Policy for Highland Estates

8.1 No development may occur prior to rezoning, subdivision, or the approval of a Development Permit.

8.2 A Bare Land Condominium will be created as part of the subdivision process.

8.3 Impacts to adjacent land and residents will be minimized during all construction activities.

8.4 Owners will be encouraged to minimize the building pocket and keep each parcel natural with existing vegetation.

8.5 All applications and construction shall be consistent with the vision presented in the Master Plan.

8.1 Phasing

Development of Highland Estates is proposed to be undertaken in one phase. Construction is anticipated to occur within one construction season. All parcels will be released at the same time, house construction will be dependent on market conditions.

8.2 Next Steps

Following the approval of the Master Plan, the Developer will be responsible for moving forward with YESAA (if applicable), required studies, rezoning, subdivision, detailed engineering design, and ultimately the development of the land and release of parcels.

8.2.1 Rezoning

The City of Whitehorse Zoning Bylaw will require an amendment to reflect the land use zone shown in the Master Plan. An application for rezoning of the Development Parcel must be completed prior to subdivision.

8.2.2 Subdivision

Following rezoning approval to RC2 – Country Residential 2, a subdivision application will be submitted to the City. As proposed in the Master Plan, the Subdivision Boundary will be registered as a Bare Land Condominium. As part of the subdivision endorsement package, the City of Whitehorse will be included as one of the parties to ensure required communication should there ever be changes to ownership or conditions.

8.2.3 Development Permit

Prior to construction, the Developer will prepare and obtain approval of a Development Permit, which will include detailed design drawings. The design package will include grading, private roadway improvements, easements for utilities, landscaping, and any other details deemed necessary.

Appendix A Proof of Title

CERTIFICATE OF TITLE

Yukon • Canada

FEE SIMPLE

Yukon Land Registration District • Land Titles Office

Title #: 100167847
Title Status: Active
Parcel Value: $500,000.00
Title Value: $500,000.00
Last Title Transfer Value: $500,000.00
Converted Title #: 2007Y0167
Previous Title #: 100140310
Title Creation Packet: 100165025

As of: 30 Apr 2023 17:47:14.000
Last Amendment Date: 17 Oct 2021 14:42:07.536
Issued: 01 Oct 2021 13:35:00.000
Community: Whitehorse
CLSR #: 89989
Grant #: 170082, 34809
Parcel Type: Surface Parcel
Parcel Class: Unknown

This is to certify that

Lobird Living Corp

is the registered owner of an estate in fee simple in

> **Legal Land Description:**
> Parcel #100087567; or
> Lot 1206 Group/Quad 105 D/11, Whitehorse, YT, Plan No. 2005-0035

Subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the Register.

Mailing Address:

Owner Name:	**Address:**
Lobird Living Corp Client #: 100189616	c/o 3 28018 TWP Road 540, Parkland County, AB, Canada, T7X4A6

Registrar's Notes:

This certificate is to be read subject to the provisions of section 59 of the Land Titles Act, 2015 SY 2015, c.10 and may be affected by sections 11-14 and 17 of the Territorial Lands (Yukon) Act SY 2003, c.17.

Registered Interests:

Interest #: 100418431
Interest Type: CNV Caveat
Value: N/A
Registration Date: 24 Aug 2005 04:43:28.000
Amendment Date: N/A
Assignment Date: N/A
Expiry Date: N/A
Converted Instrument #: 170084
Interest Register #: 100125728

Holder:
COMMISSIONER OF YUKON
N/A, Yukon
Canada
Client #: 100005657

Interest #: 100418633
Interest Type: Mortgage
Value: $2,000,000.00
Registration Date: 01 Oct 2021 13:36:00.000
Amendment Date: N/A
Assignment Date: N/A
Expiry Date: N/A
Converted Instrument #: N/A
Interest Register #: 100146978

Holder:
Canadian Imperial Bank of Commerce
10102 Jasper Avenue
Edmonton, AB
Canada T5J1W5
Client #: 100190348

Interest #: 100418655
Interest Type: Caveat
Value: N/A
Registration Date: 01 Oct 2021 13:37:00.000
Amendment Date: N/A
Assignment Date: N/A
Expiry Date: N/A
Converted Instrument #: N/A
Interest Register #: 100146989

Holder:
Canadian Imperial Bank of Commerce
110 Main Street
Whitehorse, Yukon
Canada Y1A2A8
Client #: 100000595

YUKON LAND REGISTRATION DISTRICT
LAND TITLES
OFFICE

Registrar

This certificate is to be read subject to the provisions of section 59 of the Land Titles Act, 2015 SY 2015, c.10 and may be affected by sections 11-14 and 17 of the Territorial Lands (Yukon) Act SY 2003, c.17.

CERTIFICATE OF TITLE

Yukon • Canada

FEE SIMPLE

Yukon Land Registration District • Land Titles Office

Title #: 100167858
Title Status: Active
Parcel Value: $1,500,000.00
Title Value: $1,500,000.00
Last Title Transfer Value: $1,500,000.00
Converted Title #: 2007Y0168
Previous Title #: 100083451
Title Creation Packet: 100165036

As of: 30 Apr 2023 17:48:27.000
Last Amendment Date: 17 Oct 2021 14:42:07.536
Issued: 01 Oct 2021 13:36:00.000
Community: Whitehorse
CLSR #: 89989
Grant #: 178198, 34809
Parcel Type: Surface Parcel
Parcel Class: Unknown

This is to certify that

Lobird Living Corp

is the registered owner of an estate in fee simple in

> **Legal Land Description:**
> Parcel #100053223; or
> Lot 1207 Group/Quad 105 D/11, Whitehorse, YT, Plan No. 2005-0035

Subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the Register.

Mailing Address:

Owner Name:	**Address:**
Lobird Living Corp Client #: 100189616	c/o 3 28018 TWP Road 540, Parkland County, AB, Canada, T7X4A6

Registrar's Notes:

This certificate is to be read subject to the provisions of section 59 of the Land Titles Act, 2015 SY 2015, c.10 and may be affected by sections 11-14 and 17 of the Territorial Lands (Yukon) Act SY 2003, c.17.

Registered Interests:

Interest #: 100418644
Interest Type: Mortgage
Value: $2,000,000.00
Registration Date: 01 Oct 2021 13:36:00.000
Amendment Date: N/A
Assignment Date: N/A
Expiry Date: N/A
Converted Instrument #: N/A
Interest Register #: 100146978

Holder:
Canadian Imperial Bank of Commerce
10102 Jasper Avenue
Edmonton, AB
Canada T5J1W5
Client #: 100190348

Interest #: 100418666
Interest Type: Caveat
Value: N/A
Registration Date: 01 Oct 2021 13:37:00.000
Amendment Date: N/A
Assignment Date: N/A
Expiry Date: N/A
Converted Instrument #: N/A
Interest Register #: 100146989

Holder:
Canadian Imperial Bank of Commerce
110 Main Street
Whitehorse, Yukon
Canada Y1A2A8
Client #: 100000595

YUKON LAND REGISTRATION DISTRICT
LAND TITLES
OFFICE

Registrar

This certificate is to be read subject to the provisions of section 59 of the Land Titles Act, 2015 SY 2015, c.10 and may be affected by sections 11-14 and 17 of the Territorial Lands (Yukon) Act SY 2003, c.17.

Appendix B Permission to Act for Landowner

August 18, 2025,

To whom it may concern, and The City of Whitehorse staff.

We Dwight Chalifour and Henry Deacon, the owners of Lobird Living Corp, Lot 1206/1207 QUAD 105D/11, authorize Stantec Consulting to act on our behalf pertaining to the Master Plan, Rezoning, and Subdivision affecting the aforementioned parcel.

Sincerely, Dwight Chalifour and Henry Deacon.

Owners/Directors

Lobird Living Corp.

_____
Signature

Dwight Chalifour_____
Print Name

_____
Signature

Henry Deacon_____
Print Name

Appendix C Letter of Permission for a Site Visit

August 18, 2025

To whom it may concern, and The City of Whitehorse staff.

We Dwight Chalifour and Henry Deacon, the owners of Lobird Living Corp. give permission for City staff to conduct a site visit on the subject site, Lot 1207 (Lobird Estates), for matters related to the Master Plan.

The best access point: turn left (west) after the Canada Post mailboxes (bus stop) and drive west up the hill to the west side of the apartment building.

Sincerely, Dwight Chalifour and Henry Deacon.

Owners/Directors

Lobird Living Corp.

_____
Signature

Dwight Chalifour_____
Print Name

_____
Signature

Henry Deacon_____
Print Name

Appendix D Heritage Resources Overview Assessment

Heritage Resources Overview Assessment for Proposed Residential Developments in Lobird

July 14, 2023

Prepared for:

Lobird Living Corp
3 28018 TWP Road 540
Parkland County, AB, Canada

Prepared by:

Stantec Architecture Ltd.
202-107 Main Street
Whitehorse, YT Y1A 2A7
T: (867) 633-2400

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENTS IN LOBIRD

The conclusions in the Report titled Heritage Resources Overview Assessment for Proposed Residential Developments in Lobird are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Lobird Living Corp (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by: Digitally signed by Beaulieu, Dawson Date: 2023.07.25 15:26:07 -07'00'

Signature

Dawson Beaulieu

Printed Name

Reviewed by: Mark Young

Signature

Mark Young

Printed Name

Approved by:

Signature

Zoe Morrison

Credits

Project Manager

Zoë Morrison

Editors

Mark Young

Ian Streeter

Author/ GIS

Dawson Beaulieu, BSc

Executive Summary

At the request of Lobird Living Corp. (LLC), Stantec Architecture Ltd. (Stantec) undertook a heritage resources overview assessment (HROA) for a proposed residential developments for Lot 1207, located in Lobird, Whitehorse, Yukon (the study area). The study area is within the traditional territory of the Kwanlin Dün First Nation (KDFN) and Ta’an Kwäch'än Council (TKC).

The HROA involved a detailed desktop review to describe the nature and extent of recorded heritage sites near the study area, determine the level of potential for anticipated types of heritage sites, classify the land base into areas of heritage potential, and recommend if additional heritage assessment is warranted for the study area.

No areas of elevated heritage potential were identified within the study area and no further heritage assessment is recommended for the study area.

Table of Contents

EXECUTIVE SUMMARY ..... **IV**

1.0 INTRODUCTION **2**
1.1 APPLICABLE LEGISLATION 3
1.2 HERITAGE ASSESSMENT DESCRIPTION 3

2.0 BACKGROUND **4**
2.1 PALAEOENVIRONMENTAL BACKGROUND 4
2.1.1 Geology 4
2.1.2 Glacial History 4
2.2 MODERN ENVIRONMENTAL BACKGROUND 5
2.2.1 Physical Geography 5
2.2.2 Climate, Vegetation, and Wildlife 6
2.3 ETHNOGRAPHY 7
2.3.1 Southern Tutchone Ethnography and Ethnohistory 7
2.4 YUKON ARCHAEOLOGICAL CULTURE HISTORY 8
2.4.1 Northern Cordilleran Tradition (> 7,000 BP) 8
2.4.2 Little Arm Phase (8,000–5,000 BP) 9
2.4.3 Annie Lake Complex (5,100–4,600 BP) 9
2.4.4 Taye Lake Phase (6,000–1,250 BP) 9
2.4.5 Late Prehistoric Period (1,250–50 BP) 10
2.5 POST-CONTACT HISTORY 11

3.0 METHODS **12**

4.0 RESULTS **12**
4.1.1 Previous Heritage Assessments 12
4.1.2 Heritage Sites 12
4.1.3 Heritage Potential 14
4.1.4 Limitations of the Assessment 14

5.0 RECOMMENDATIONS **14**

6.0 CLOSURE **14**

7.0 REFERENCES **15**

Figure 1 HROA Results 13

ABBREVIATIONS

asl	Above sea level
ASR	Archaeological Sites Regulation
BP	Before present
HRIA	Heritage Resources Impact Assessment
HROA	Heritage Resources Overview Assessment
HRU	Government of Yukon, Heritage Resources Unit
KDFN	Kwanlin Dün First Nation
Stantec	Stantec Architecture Ltd.
TKC	Ta’an Kwäch'än Council
YASI	Yukon Archaeological Sites Inventory
YESAA	Yukon Environmental and Socio-Economic Assessment Act
YESAB	Yukon Environmental and Socio-Economic Assessment Board
YG	Government of Yukon
YHSI	Yukon Historic Sites Inventory

1.0 INTRODUCTION

At the request of Lobird Living Corp. (LLC), Stantec Architecture Ltd. (Stantec) undertook a heritage resources overview assessment (HROA) for the proposed residential developments within undeveloped portions of Lot 1207 (the 'study area'), located in the Lobird Subdivision within the City of Whitehorse. The study area is within the traditional territory of the Kwanlin Dün First Nation (KDFN) and Ta'an Kwäch'än Council (TKC).

The HROA involved a detailed desktop review to describe the nature and extent of recorded heritage sites near the study area, determine the level of potential for anticipated types of heritage sites, classify the land base into areas of heritage potential, and recommend if additional heritage assessment is warranted for the study area.

Background information for the study area is included in Section 2.0 and HROA methods are outlined in Section 0. The results of the HROA are discussed in Section 4.0.

Note that this report includes heritage site location information, and should not be made publicly available (e.g., through submission to the Yukon Environmental and Socio-economic Assessment Board Online Registry).

1.1 APPLICABLE LEGISLATION

Several acts, agreements and regulations apply to heritage resources within the study area. These include the Historic Resources Act (Government of Yukon 2002) and Archaeological Sites Regulation (Government of Yukon 2003a), the *Yukon Territorial Lands Act* Land Use Regulations (Government of Yukon 2003b), the Umbrella Final Agreement (Government of Canada et al. 1993), and the *Yukon Environmental and Socio-Economic Assessment Act* (YESAA; Government of Canada 2003).

The *Historic Resources Act* and Archaeological Sites Regulation contain legislation that mandates the management and protection of Yukon archaeological, historical, and paleontological resources. Archaeological, historical, and paleontological resources are protected from unpermitted surveys, disturbances, alterations, or excavations. This legislation applies to heritage resources on both private and public land and archaeological and historical resources that are older than 45 years.

The *Territorial Lands Act* Land Use Regulation contains regulations regarding operations around, and the discovery of, archaeological sites. Section 9(a) of the Regulation stipulates that “no permittee shall, unless expressly authorized in their permit or expressly authorized in writing by an inspector, conduct a land use operation within 30 m of a known monument or a known or suspected archaeological site or burial ground.” Furthermore, Section 15 states that “Where, in the course of a land use operation, a suspected archaeological site or burial ground is unearthed or otherwise discovered, the permittee shall immediately (a) suspend the land use operation on the site; and (b) notify the engineer or an inspector of the location of the site and the nature of any unearthed materials, structures, or artifacts.”

The *Yukon Environmental and Socio-Economic Assessment Act* requires that potential effects to heritage resources are considered during review of proposed projects. The Heritage Resource Information Requirements for Land Application Proposals Policy (Operational Policy No. 2011-01) developed by the Yukon Environmental and Socio-Economic Assessment Board outlines the requirement for a heritage resource assessment to be included with any proposal that includes disposition of land.

1.2 HERITAGE ASSESSMENT DESCRIPTION

The purpose of an HROA is to assess the potential for heritage resources within a study area and to make recommendations concerning the need for and scope of further heritage studies. The HROA involved a detailed desktop review of the study area to: 1) describe the nature and extent of recorded heritage sites within the study area; 2) determine the level of potential for anticipated types of heritage sites; and 3) classify the land base into areas of heritage potential.

2.0 BACKGROUND

Background information regarding the environmental, ethnographic, culture history, land use and previous heritage work contexts for the study area is presented below.

2.1 PALAEOENVIRONMENTAL BACKGROUND

The following section summarizes the geological and glacial background of the greater Whitehorse area (GWA) and follows Lipovski (2023) unless otherwise cited.

2.1.1 Geology

The oldest rocks within the GWA date to the upper Paleozoic, in the Takhini Assemblage (323 ma), followed by upper Triassic, in the Aksala Formation (229-200 ma). These include metamorphosed volcanic rocks and minor marble from the Paleozoic, and a range of sedimentary rocks including shale, siltstone, sandstones, mudstones and limestones from the Triassic. Thick bedded limestone from the Hancock sub-group of the Aksala Formation can be seen on Grey Mountain. The Laberge Group rocks were formed during the Jurassic period (199-175 ma) and consist of sedimentary rocks as well as dacite crystal tuff and volcaniclastic sandstone, found in the northern portion of the GWA. During the mid-Cretaceous period (112-105 ma), the GWA was intruded by granitic plutons at various locations, including Mt. McIntyre, lower Fish Lake Road, and Ice Lake. Copper formations sometimes occurred at the margins of these intrusions and limestone from the Hancock sub-group, resulting in the Whitehorse Copper Belt. Subaerial lava flows erupted between 8.9 and 3.2 ma during from Golden Horn Mountain, during the late Miocene. The flows extend from Mary Lake to Riverdale subdivisions, forming the Miles Canyon Basalt. These basalt flows have been measured at depths of 110 meters.

2.1.2 Glacial History

Though several glacial periods have occurred across Southern Yukon, the modern landscape was shaped almost completely by the most recent McConnell Glaciation, then transformed by subsequent drainage and erosion following its decline. The McConnell Glaciation occurred from approximately 24,000 to 11,000 years ago. Ice reached its maximum extent about 18,000 years ago, reaching 1350 m thick across the GWA. Ice flow during glacial maximum was generally northwest. As deglaciation progressed, ice thickness decreased and local topography had greater influence on ice flow, and ice began to retreat southeast generally, though northwestward readvances also occurred.

As glacial ice melted, drainage was often blocked by either glacial ice or glacially formed topography, inundating to form glacial lakes. A lobe of ice readvanced to the north end of Lake Laberge, forming a recessional moraine, blocking drainage from flowing north. As ice retreated southeast again, Glacial Lake Laberge was impounded between the ice front and the moraine, causing lake levels to reach over 700 m asl (approximately 12,000 years ago). As the moraine eroded, water was released to form the Yukon River valley.

During a similar event, glacial readvances formed recessional moraines that dammed meltwater in both the Takhini and Dezadeash river valleys, impounding Glacial Lake Champagne. The lake reached levels of over 850 m asl, and occupied much of the Kusawa Lake, Dezadeash River, and Takhini River valleys. Glacial Lake Champagne initially drained via Taye Lake and the Nordenskiöld River Valleys until ice fully retreated from the Takhini River Valley, at which time the remainder of Glacial Lake Champagne drained into Glacial Lake Laberge. Fish Lake and the Ibex Valley were also inundated by smaller glacial lakes at around the same time as Glacial Lakes Champagne and Laberge, known as the Cassiar Readvance Phase (approximately 12,000 – 10,500 years ago).

Fine grain glaciolacustrine sediment (fine sand, clay, silt) settled at the bottom of glacial lakes. After glacial lakes drained, the sediment remained, blanketing the Yukon and Takhini River Valleys. These sediments are 300 m deep in places. As Lake Laberge continued draining to its modern size, its southern shoreline gradually travelled north, depositing a layer of loess (fine sand and silt) on top of the glaciolacustrine sediment. These sands were then transported via wind erosion and deposited at various locations around the GWA, forming extensive sand dune fields. As the boreal forest was established between 9,000 – 10,000 ya, the sand dunes stabilized with vegetation cover.

Glacial meltwater established channels that would later become tributary perennial watercourses (e.g., McIntyre Creek, Wolf Creek), to major river systems. Glaciolacustrine sediments in the Yukon and Takhini River valleys continued to be cut downward throughout the Holocene (11,000 to present), forming steep bluffs that can be seen in downtown Whitehorse or at the confluence of the Yukon and Takhini Rivers.

Kettle lakes kame topography commonly found in the Yukon River valley (e.g., Chadburn Lake, Long Lake, Hidden Lakes) were formed during ice retreat, when large, orphaned blocks of ice were left behind by the receding body of ice, and subsequently thawed.

2.2 MODERN ENVIRONMENTAL BACKGROUND

2.2.1 Physical Geography

The Whitehorse area can be categorized by the Yukon River valley bottom, the upland terrace/escarpment, and a complex of post-glacial lakes (CoW 2017, 2018). The valley bottom is a fluvial plane with basal sediments of glaciolacustrine silts sometimes overlain by alluvial sands and gravels. Bedrock has not been observed throughout much of the valley bottom but, has been encountered at depths of nearly fifty metres below ground (CoW 2017, 2018). Small wetlands are found in the area and the water table is typically encountered one to two metres below ground. The modern valley bottom was mostly shaped by deglaciation when significant deposition of glaciolacustrine sands and silts occurred.

The upland terrace is an approximately fifty metres high, glaciolacustrine bluff or escarpment bordering the river valley. The southern portion of the terrace is a relatively level plain with basal glaciolacustrine sediments of sands and gravels overlain by silty sand. The terrace was formed simultaneous to the formation of Glacial Lake Laberge which at its maximum height deposited the sediments in the silt bluffs (Barnes 1997; Mouget 1997 and 1998). The northern portion of the upper terrace is characterized by undulating hummocky terrain.

The post-glacial lake complex is composed of glacial outwash sands and gravels forming steep hummocky terrain characterized by remnant pothole lakes, particularly the Ear Lake complex south of the city as well as the Chadburn lake complex. These lakes are remnant of deglaciation of the area, specifically a period stagnation in the recession of the Cassiar Lobe.

2.2.2 Climate, Vegetation, and Wildlife

The high mountain ranges surrounding the GWA block mild, moist Pacific air from reaching the Yukon interior, producing a rain shadow effect (Wahl and Goos 1987). Consequently, the climate is Subarctic continental, and dominated by cold, dry arctic air masses for most of the year, with only occasional intrusions of Pacific air despite its proximity to the Pacific coast. Mean annual temperature lies between -2° and -5°C and mean annual precipitation is only 250–300 mm/year (Smith et al. 2004). These environmental factors limit the vegetation to those species that can withstand both cold and dry conditions.

White spruce (Picea glauca) and trembling aspen (Populus tremuloides) are the dominant tree species and have an understory of various shrubs, herbs, and grasses. Woodland areas are punctuated by sedge and grass meadows. In many places one can find grass-covered south-facing slopes while northern exposures are vegetated with closed spruce forests growing on permafrost. Elevation also exerts considerable influence on vegetation patterns (Murray and Douglas 1980). A montane forest zone can be found on the valley bottoms extending upslope to a height of 1300 m asl. At this elevation, trees give way to a subalpine zone of shrubs, which gradually is replaced by an alpine community of low-growing plants above 1500 m asl.

The southwest Yukon's variable environments are mirrored by a diversity of wildlife that is unusual in northern areas (Hoefs 1980). Most vegetation zones have associated mammal communities. Dall sheep (Ovis dalli), mountain goats (Oreamnos americanus), grizzly bears (Ursus arctos), cougars (Felis concolor), marmots (Marmota caligata), and pika (Ochotona collaris) are present in the alpine zone; mule deer (Odocoileus hemionus) and various rodents live near the forest edge; and moose (Alces alces), caribou (Rangifer tarandus), black bear (Ursus americanus), and wolves (Canis lupus) inhabit forested areas. Snowshoe hare (Lepus americanus) and arctic ground squirrels (Citellus parryi) can be found throughout the region and are the basis for much of the higher food chain (Krebs 1980). Fish species occurring in this region include lake whitefish (Coregonus clupeaformis), round whitefish (Prosopium cylindraceum), lake trout (Salvelinus namaycush), northern pike (Esox lucius), and arctic grayling (Thymallus arcticus). Species found in the territory that occur only in the Yukon River watershed include inconnu (Stenodus leucichthys), broad whitefish (Coregonus nasus), and least cisco (Coregonus sardinella). Only two species of salmon can be found in the upper Yukon system and these salmon bearing streams are located only in the northern reaches of the southwest Yukon (McClellan 1963; Hayes 1892 in Workman 1978:87). Chinook salmon (Oncorhynchus tshawytscha) are reported to spawn in small numbers along the lower portion of McIntyre Creek (CPAWS Yukon 2020:26).

2.3 ETHNOGRAPHY

The study area is within the traditional territory of the Kwanlin Dün First Nation (KDFN) and Ta'an Kwäch'än Council (TKC). KDFN and TKC identify linguistically as Southern Tutchone (KDFN 2022; TKC 2022).

2.3.1 Southern Tutchone Ethnography and Ethnohistory

The following general review of Southern Tutchone ethnography is based on McClellan's (1964, 1975, 1981, 1987) extensive research with the Southern Tutchone. Emphasis has been placed on the seasonal round and subsistence strategies that are most likely to have left physical evidence of past human use and may have influenced the archaeological record of the study area.

The Southern Tutchone did not have a primary political unit, and family groupings were regionally defined by geographical characteristics, even when families may not have lived together for the entire year. The leader or "Chief" of this social unit was often determined by knowledge and hunting ability (McClellan 1975). The primary social groupings of the Crow and the Wolf moieties determined patterns of matrilineal descent, marriage, residency and the allocation of hunting and fishing grounds.

The Southern Tutchone seasonal subsistence round involved the summer aggregation of the group at selected fishing camps chosen for the availability of migrating salmon. The main rivers in the Southern Tutchone territory are the Alsek and its tributaries, which drain to the Pacific Ocean; and the Takhini, the upper Yukon, Donjek, Kluane and Nisling, all of which drain into the Bering Sea via the Yukon drainage basin. The five major lakes of Sekelmun, Aishihik, Kusawa, Laberge, and Kluane, along with numerous smaller water bodies, feed the Yukon-White River system. Settlement near these locations involved several families returning to established summer fishing locations each year. A variety of berries and roots were available and constituted an important food source for harvest and storage while at fishing stations and summer base camps.

By late summer, groups dispersed into the upland region to supplement and replenish food stores with a focus on securing game for winter provisions. Meat was generally dried or smoked on racks and stored in caches near the main dwellings (McClellan 1981). Caribou, moose, mountain goat, sheep, and bear were principal sources of both food and clothing, although smaller species such as hare and marten were also trapped or hunted for their food and fur. In December and January people usually regrouped to share stored foods but once again dispersed in late winter to find game.

The Southern Tutchone traditionally built conical or rectangular lean-tos with a tied pole framework, brush walls and roofs of moss, bark or skin. These structures often housed several families sharing a central fireplace. By the late nineteenth century, some Southern Tutchone began constructing coastal-style rectangular houses of logs or split planks (McClellan 1981). Several smaller structures were typically erected near the main dwellings, including meat and fish drying racks, racks for boat frames and toboggans, and frames for skin tanning and smoking, as well as small huts for menstruants and parturients. No excavation was required for a main foundation, and evidence of postholes and central hearths are the primary features most likely to be found archaeologically for such structures. Domed tents of caribou or moose hide stretched over sapling frameworks were used by smaller late winter family groups.

A wide variety of implements were used for hunting, fishing and gathering plant foods. Stone tools such as projectile points, knives, scrapers, and flaking debris are commonly recovered from archaeological contexts. The larger suite of implements made of less durable materials including antler, bone, leather, wood and perishable fiber are not well-represented archaeologically due to poor preservation in acidic soil conditions. Many kinds of traps, snares, corrals and hunting blinds were used during ethnographic and historical times and still can be seen on the landscape today. Box and funnel traps were utilized in conjunction with weirs to catch salmon, trout, pike, and large whitefish. Dip nets, gill nets, leisters, hooks, gaffs, spears, and lines were also used to catch fish (McClellan 1981).

Prior to European contact, interior Tutchone people maintained trade networks with Coastal Tlingit of Alaska and northern BC. Trails and river corridors facilitated the movement of dentalium, copper, Chilkat blankets, eulachon, seaweed, and cedar baskets to the interior in exchange for meat, goat fur, and other goods (McClellan 1964). Russian fur traders introduced a new exchange market in the late 1700s and early 1800s, which was readily incorporated into pre-existing trade networks and focused on sea otter and other fur-bearing mammal pelts. This trade brought kettles, needles, blankets, and eventually guns to the southwest Yukon.

2.4 YUKON ARCHAEOLOGICAL CULTURE HISTORY

The most comprehensive culture history for the Yukon was compiled by Workman (1978), and the following description follows his work, except where otherwise cited. Major differences between Workman's chronology and that in use today include the conception of a Northern Cordilleran tradition (Clark 1991, 1983; Clark and Clark 1993; Clark and Morlan 1982; Gotthardt 1990; Hare 1995), the recognition of the mid-Holocene Annie Lake Complex (Greer 1993; Hare 1995), and the combination of Workman's Aishihik and Bennett Lake Phases into the Late Prehistoric Period (Hare 1995).

2.4.1 Northern Cordilleran Tradition (> 7,000 BP)

Increasing evidence for a pre-microblade technological tradition in the Yukon has led many researchers to adopt the Northern Cordilleran tradition as a viable construct in Yukon archaeology. Clark and Clark (1993) would classify any interior site older than 7,000–8,000 BP and lacking microblades as Northern Cordilleran.

In many places this technological tradition existed contemporaneously with users of the microblade technology of the Little Arm Phase, and this appears to have been the case in the southern Yukon (Hare 1995). Characteristic artifact forms included large bifaces, blades from informal cores, tools on blades (e.g., transverse notched burins, and burin/scraper/notch combinations), and large, convex based and side notched or lobate stemmed Kamut points (Gotthardt 1990). To this list can be added elongate stone knives (Clark 1991) and bipoints (Hare 1995). The basal occupation of the Canyon site (JfVg-1), which is dated to 7,195 ± 130 BP, as well as Moose Lake (KaVn-2), which is dated to between 10,670 ± 80 BP and 10,130 ± 50 BP, have both been identified as Northern Cordilleran occupations (Hare 1995).

2.4.2 Little Arm Phase (8,000–5,000 BP)

After about 8,000 BP a distinctive microblade technology spread to many areas of the Yukon and, while it was thought that this technology disappeared after around 5,000 BP, reevaluations suggest that it was present much later (Hare 1995; Hare and Hammer 1997). Clark (1991) accounted for these later microblade assemblages by suggesting that they resulted from hybridization with subsequent cultures. This phase was characterized by microblades, tabular and wedge-shaped microcores, burins, geometric round-based points, and the absence of Taye Lake diagnostics (see below). There were no notched points, and large bifaces and other heavy implements were very rare or absent. Endscrapers were large and narrow, but not abundant, and gravers also occurred. Sites probably represented short stays by small groups, and evidence suggests that the subsistence base was much like the early Taye Lake Phase, and included bison, caribou, moose, and birds.

2.4.3 Annie Lake Complex (5,100–4,600 BP)

Greer (1993) reviewed evidence of a distinctive technological complex in southwestern Yukon that consisted of concave based lanceolate projectile points. She noted that these points have morphological similarities to McKean points on the Plains and Shuswap points from the Plateau and suggested that this may represent a broad cultural interaction sphere. During initial excavations at the Annie Lake site (JcUr-3) Greer (1993) could provide bracketing dates of 4,900–2,000 BP for this complex. With additional work at the site, Hare (1995) determined that the complex dated between 6,200–2,900 BP and is likely restricted to 5,100–4,600 BP (Hare 1995: 130), although he feels that this is tentative. Hare (1995) also added the use of high-quality lithic materials and highly curated multipurpose tools as traits of the complex.

2.4.4 Taye Lake Phase (6,000–1,250 BP)

Part of the widespread Northern Archaic Tradition, which Clark (1991) believes developed out of the Northern Cordilleran tradition, the Taye Lake Phase consists of all archaeological materials that are younger than 5,000 BP but predate the White River Ash. This phase was characterized by notched or lanceolate points with straight or slightly concave bases, an abundance of large bifaces, thick unifaces, a variety of endscrapers, and a developed bone industry. Ground stone was present but native copper was not in use. Burins were rare, and gravers were only found sporadically. End scrapers were profuse, of either rounded or angular form, possibly with multiple working edges.

This was the only phase where endscrapers had been prepared for hafting. Workman suggested a division of this phase at 3,000–3,500 BP with late traits being tabular schist bifaces and stone wedges, and early traits being notched cobbles and shaped, beveled blades. He saw this division as coincidental with the onset of Neoglaciation, the resulting formation of proglacial lakes, and the probable disappearance of grasslands and bison. Large, rich sites were suggestive of seasonal return to favourable locations over a long period of time. Trapping, fishing, and bird hunting likely supplemented big game hunting. On technological grounds, Workman proposed a population replacement or absorption at the beginning of this phase to explain the many differences and very few similarities between it and the Little Arm Phase but, as Hare (1995: 104– 105) noted, technological traditions are not the equivalent of cultural traditions so population movements are not necessary to account for the differences.

The Taye Lake Phase is somewhat arbitrarily separated from the Late Prehistoric Period by the White River Ash, a useful stratigraphic marker, and, while Workman (1978) saw a great deal of cultural continuity across this horizon, he also felt that the ashfall had catastrophic effects on the people living in the southwest Yukon at the time of the eruption. Coincidental with the eruption, people were coping with other significant changes to the landscape; neoglacial ice had restricted access to the mountains and had caused flooding of the valleys, while at the same time salmon were prevented from reaching the interior, and bison, an important resource, may have disappeared (Workman 1973). As a result, he believed that the area was probably abandoned for several years and people dispersed either north or south, out of the path of the ash. This proposed exodus may have caused hostility with neighbouring groups, whose territory was restricted by the newcomers. Workman (1973, 1978, and 1979) also believed that the migrations, which resulted in the arrival of Athapaskan speakers to the American Pacific Coast and Southwest, were triggered by this eruption. Moodie et al. (1992) offered corroborating evidence by recording oral traditions among Mackenzie Dene that tell of a large volcanic eruption, widespread ashfall, and of their coming to the Mackenzie Valley from over the western mountains. Otherwise, Workman's arguments for cultural upheaval because of the volcanic explosion remain circumstantial.

2.4.5 Late Prehistoric Period (1,250–50 BP)

This period postdates the fall of the White River Ash and includes the introduction of European trade goods near its terminus. It was characterized by use of native copper implements and a reduced dependency on flaked stone. Characteristic artifact types included endscrapers with rounded outlines and thin working edges, and bifaces and unifaces with thin working edges. Burins were absent or very rare, and tabular bifaces and stone wedges (pièces esquillées) reached maximum frequency. Unique traits were native copper, abraded cobbles, multi-barbed bone points, small-stemmed Kavik-like points, small side-notched points, and slate pieces with thick, flat ground edges. Those types shared with the Taye Lake Phase were geometric and notched points, multi-barbed bone points, stone wedges, boulder spalls, two endscraper types, flake blade cores, blunted discoids, tabular bifaces, stemless points, broad, thin endscrapers, discoidal flake cores, and other general traits. Small sites probably reflected the ethnographic settlement pattern. Workman (1978) agreed with MacNeish (1964) that forest expansion was probably responsible for the decrease in site size and number but, unlike that author, saw no evidence for increased fishing and trapping at the expense of large game hunting.

Near the end of the Late Prehistoric Period an elaborate bone industry and a growing significance of European trade goods were in evidence. Not present, but expected, characteristics of this phase include the increased use of metal tools at the expense of stone and native copper, the use of metal pots instead of skin or bark bags and boiling stones, an increase in axe-chopped bones with fewer calcined fragments, an increased emphasis on fur-bearing animals because of the fur trade, and increased sedentism with log cabin villages being occupied at least seasonally.

2.5 POST-CONTACT HISTORY

Early European exploration in the southwest Yukon began with those of Frederick Schwatka, who in 1883 undertook a geological and geographical survey for the Unites States military (Schwatka 1898). William Ogilvie and George Dawson also travelled along the Yukon River in southwest Yukon during their explorations for the Geological Survey of Canada in 1887 to 1888 (Dawson 1887).

European settlement began in the region during the Klondike Gold Rush in 1897. The first settlements in the area included Canyon City, above Miles Canyon, and Closeleigh, which was situated across the river from where downtown Whitehorse is today (Sack 1970). These settlements were dependent on Norman Macauley's tramway which provided the sole means of portage around Miles Canyon and the Whitehorse rapids. Between 1898 and 1900 the White Pass & Yukon Route Railway was built between Skagway and Whitehorse. Once the White Pass railroad was built, the settlements surrounding the tramway were abandoned, with settlement moving to the end of the rail line at Whitehorse. Whitehorse thrived during the Klondike Gold Rush being situated at the end of the rail line and beginning of the steam ship routes to Dawson (Sack 1970).

The next influx of people into the region came with the Second World War and the construction of the Alaska Highway. The construction of the Alaska Highway altered settlement patterns in the area as people moved to higher populated areas for access to schools, wage-labour jobs and medical services. The large influx of military personnel into the Yukon associated with the construction of the highway and the Whitehorse airport also required considerable development for housing (Sack 1970). Many of these housing developments and residential areas became the subdivisions seen in and around Whitehorse today.

3.0 METHODS

The research component of the HROA involved a review of relevant literature. Information sources included published ethnographic and historical sources, unpublished heritage assessment reports, and environmental reports. The Yukon Archaeological Sites Inventory (YASI) and the Yukon Historic Sites Inventory (YHSI) were also reviewed to identify previously recorded heritage sites within and near the study area. Spatial data (digital topographic and resource maps, digital elevation models, satellite photos) for the study area was also compiled. This information was reviewed to determine what types of past human activities may have occurred within the study area and where those activities are most likely to have been conducted. Criteria used to determine potential for heritage resources included: proximity to streams and water bodies, known heritage sites, known First Nation or historical trails, topography, vegetation cover, and presence of fish and wildlife habitat. Areas were then classified and mapped as having elevated heritage potential (if present within the study area).

4.0 RESULTS

The study area is located within the City of Whitehorse municipal limits, approximately 1 km west of the Alaska Highway intersection with Robert Service Way. The study area is comprised of undeveloped portions of Lot 1207, depicted as ‘HROA Study Area’ on Figure 1.

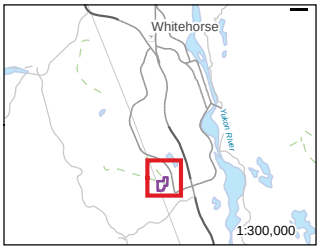
The nearest hydrological features to the study area are Ice Lake (700 m northeast) and McLean Creek (750 m southeast). Based on available spatial data (Government of Yukon 2023) topography in the study area is undifferentiated with a general west slope. Disturbance is common throughout the eastern portion of the study area, likely due to prior mineral exploration and ongoing recreational use of the area. Trails, berms, and push piles appear to be common forms of disturbance in the study area, as well as leveling near areas where development has occurred.

4.1.1 Previous Heritage Assessments

Based on a data request to Government of Yukon, Heritage Resources Unit (HRU), no previous heritage assessments have been carried out for the study area.

4.1.2 Heritage Sites

Based on a data request to YG, HRU, there are no recorded heritage sites within the study area. There are two archaeological sites within 1 km of the study area. They include JeUs-81 (500 m east) and JeUs-76 (800 m north-northeast). JeUs-76 is situated on a point adjacent to Ice Lake and is pre-contact subsurface lithic scatter with a possible hearth feature. JeUs-81 is located on a rocky outcrop / ridge situated near a seasonal wetland. JeUs-81 is recorded as a low-density, subsurface lithic scatter.



Road
Local Street
Local Trail / Path
Topographic Contour
Heritage Site
First Nation Settlement Land
Surveyed Land Parcel
HROA Study Area

0 50 100 200 300 Meters
1:7,500 (at original document size of 8.5x11)

Notes
1. Coordinate System: NAD 1983 Yukon Albers
2. Data Sources: Conservation Areas Reporting and Tracking System; Natural Resources Canada

Stantec

Project Location:
Whitehorse
NTS:105D/10

Project Number 1449033082
Prepared by DBEAULIEU on 20230525
Requested by DBEAULIEU on 20230525
Checked by MYOUNG on 20230526

Client/Project/Report

Lobird Living Corp.

Proposed Development Area

Figure No.

1

Title

Results Map

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

S:\1232\projects\1449033082\figures\fig_1449033082_results.mxd Revised: 2023-05-26 By: dbeaulieu

4.1.3 Heritage Potential

No areas of elevated heritage potential were identified within the study area. The entire study area is evaluated as having low heritage potential based on the distance of the study area from hydrological features and the absence of distinct, well-drained landforms with vantage points and viewsheds that would represent favorable locations for camping while moving through the area.

4.1.4 Limitations of the Assessment

The HROA was a desktop-based assessment and relied on existing data sources and the results of previous heritage assessments carried out in the area. Based on a data request to HRU, no heritage assessments have been carried out in the Lobird area - the paucity of nearby heritage sites may be due to the lack of field-based heritage assessments carried out in the area.

When viewing the HROA results it is important to note that low potential does not mean *no* potential. It is possible for heritage sites to be found outside areas identified as having elevated heritage potential.

5.0 RECOMMENDATIONS

The study area is considered to have low heritage potential, and no further heritage assessment is recommended.

6.0 CLOSURE

When viewing the HROA results it is important to note that low potential does not mean *no* potential. It is possible for heritage sites to be found outside areas identified as having elevated heritage potential. Heritage resources are protected from non-permitted alterations or disturbances in the Yukon by the *Historic Resources Act* (Government of Yukon 2002) and the Archaeological Sites Regulation (Government of Yukon 2003a).

To address the discovery of any unanticipated heritage resources, it is recommended that the proponent inform their personnel and contractors that, in the event heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases, Government of Yukon, Heritage Resources Unit and appropriate First Nations must be contacted immediately with information on the heritage remains and nature of the disturbance. Information on the identification of commonly encountered heritage resources can be found in a publication entitled Handbook for the Identification of Heritage Sites and Features (Gotthardt and Thomas 2005).

This study was designed solely as a HROA and was not intended to evaluate or comment on traditional First Nation use of the study area. The results of this study, therefore, should not be considered valid for that purpose.

7.0 REFERENCES

Barnes, S.D., 1997. The sedimentology and paleogeography of Glacial Lake Champagne, southern Yukon Territory. Unpublished MSc thesis, University of Ottawa, Ontario, Canada.

Clark, Donald W. 1983. Is There a Northern Cordilleran Tradition? Canadian Journal of Archaeology 7: pp. 23–48.

Clark, Donald W. 1991. Western Subarctic Prehistory. Archaeological Survey of Canada, Canadian Museum of Civilization, Hull, Québec.

Clark, Donald W., and A. McFadyen Clark. 1993. Batza Tena: Trail to Obsidian: Archaeology of an Alaskan Obsidian Source. Archaeological Survey of Canada Mercury Series, Paper No. 147. Canadian Museum of Civilization, Hull.

Clark, Donald W., and Richard E. Morlan. 1982. Western Subarctic Prehistory: Twenty Years Later. Canadian Journal of Archaeology 6: pp. 79–93.

CPAWS. 2020. The Story of McIntyre Creek (Chasàn Chùa); The History, Social Values, and Biodiversity of a Creek System in the Wilderness City. Electronic Resource, https://cpawsyukon.org/publications/. Accessed March 4, 2022.

Dawson, George M. 1887. Report on an Exploration in the Yukon District, NWT, and Adjacent Northern Portions of British Columbia. *Annual Report* vol 3, part 1. Appendix II – Notes on the Indian Tribes of the Yukon District and adjacent Northern portion of British Columbia, pp. 191-213.

Gotthardt, Ruth M. 1990. The Archaeological Sequence in the Northern Cordillera: A Consideration of Typology and Traditions. Hude Hudan Series, Occasional Papers in Archaeology No. 1. Heritage Branch, Government of Yukon, Whitehorse.

Gotthardt, Ruth M. 1991. Archaeological Assessment of Proposed Campground and Recreation Site Developments in Yukon. Permit 91-10ASR. On file at Yukon Heritage Resources Unit, Whitehorse, Yukon.

Gotthardt, Ruth and Chris Thomas. 2005. Handbook for the Identification of Heritage Sites and Features. Yukon Tourism and Culture, Whitehorse.

Government of Canada. 2003. Yukon Environmental and Socio-economic Assessment Act.

Government of Canada. 1993. Council for Yukon Indian and Government of Yukon. Umbrella Final Agreement: Council for Yukon Indians. Supply and Services Canada.

Government of Yukon. 2002. Historic Resources Act. Revised Statutes of the Yukon 2002, Chapter 109.

Government of Yukon. 2003a. Archaeological Sites Regulation. Yukon Regulations O.I.C. 2003/73.

Government of Yukon. 2003b. Land Use Regulations. Yukon Regulations, O.I.C. 2003/51.

Government of Yukon. 2023. GeoYukon Online Map Viewer. Electronic resource. Accessed May 9th 2023. GeoYukon (gov.yk.ca)

Greer, Sheila C. 1993. Annie Lake: A Southern Yukon Mid-Holocene Cultural Complex. Canadian Journal of Archaeology 17: pp. 26–42.

Hare, Greg. 1994. Final Report on the Archaeological Survey of Six Developments in the Greater Whitehorse Area. Permit 94-02ASR. On file at Yukon Heritage Resources Unit, Whitehorse, Yukon.

Hare, Greg. 1995. Holocene Occupations in the Southern Yukon: New Perspectives from the Annie Lake Site. Hude Hudan Series, Occasional Papers in Archaeology No. 5. Heritage Branch, Government of Yukon, Whitehorse.

Hare, Greg, and T.J. Hammer. 1997. New Data for a Late Persistence of Microblades in the Yukon. Paper presented at the Alaska Anthropological Association 24th Meeting, Whitehorse, Yukon.

Hoefs, M. 1980. Horns and Hooves. In Kluane: Pinnacle of the Yukon. John B. Theberge, ed. Pp. 72-79. Doubleday Canada Ltd., Toronto, ON.

KDFN. 2021. About us. Electronic resource, https://www.kwanlindun.com/about-the-kwanlin-dun/. Accessed March 4, 2022.

Krebs, Charles J. 1980. Mammals Built Close to the Ground. In Kluane: Pinnacle of the Yukon, edited by John B. Theberge, pp. 80–83. Doubleday Canada Ltd., Toronto.

Lipovsky, P.S. 2023. Surficial geology and geohazards of the greater Whitehorse area. YGS Open File 2023-1. Government of Yukon.

MacNeish, R.S. 1964. Investigations in Southwest Yukon: Archaeological Excavation, Comparisons and Speculations. Papers of the Robert S. Peabody Foundation for Archaeology 6(2). Phillips Academy, Andover, Mass.

McClellan, Catherine. 1964. Culture Contacts in the Early Historic Period in Northwestern North America. Arctic Anthropology 2(2): 3-15.

McClellan, Catherine. 1975. My Old People Say: An Ethnographic Survey of Southern Yukon Territory. 2 vols. National Museum of Man Publications in Ethnology No. 6(1). National Museums of Canada, Ottawa.

McClellan, Catherine. 1981. Intercultural relations and Cultural Exchange in the Cordillera. In *Subarctic*, edited by J. Helm, pp. 378–401. Handbook of North American Indians, Volume 6, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

McClellan, Catherine. 1987. Part of the Land, Part of the Water. A History of the Yukon Indians. Douglas and McIntyre, Vancouver.

Moodie, D. Wayne, A.J.W. Catchpole, and Kerry Abel. 1992. Northern Athapaskan Oral Traditions and the White River Volcano. Ethnohistory 39(2): pp. 148–171.

Mougeot, C., 1997. Soil, terrain, and wetlands survey, City of Whitehorse. Mougeot GeoAnalysis, Whitehorse, Yukon, unpublished report prepared for Planning Services, City of Whitehorse.

Mougeot, C., 1998. Soil and terrain features of the Yukon River corridor. Mougeot GeoAnalysis, Whitehorse, Yukon, unpublished report prepared for Gartner Lee Consultants Ltd.

Murray, D.F. and Douglas, G.W., 1980. The Green Mantle. In Kluane Pinnacle of the Yukon. J.B. Theberge, ed. Pp 52-63. Doubleday Canada Ltd., Toronto, Ontario.

Sack, Doug. 1970. A Brief History of Whitehorse, Capital of the Yukon. Whitehorse, Yukon.

Schwatka, Frederick. 1898. A Summer in Alaska: A Popular Account of the Travels of an Alaska Exploring Expedition along the Great Yukon River, from Its Source to Its Mouth, in the British North-West Territory, and in the Territory of Alaska. J.Y. Huber, Philadelphia.

Smith, C.A.S., J.C. Meikle and C.F. Roots (editors). 2004. Ecoregions of the Yukon Territory: Biophysical Properties of Yukon Landscapes. Agriculture and Agri-Food Canada, Research Branch, Summerland, BC.

TKC. 2022. A Short History of the Ta'an Kwäch'än. Electronic resource, https://taan.ca/history/. Accessed March 4, 2022.

Van Drecht, L.H., Beranek, L.P. and Hutchison, M, 2017. Jurassic Stratigraphy and Tectonic Evolution of the Whitehorse Trough, Central Yukon: Project outline and preliminary field results. In: Yukon Exploration and Geology 2016, K.E. MacFarlane and L.H. Weston (eds.), Yukon Geological Survey, p. 207-223.

Wahl, H.E., and T.O. Goos. 1987. Climate. In Guidebook to Quaternary Research in Yukon. S.R. Morrison and C.A.S. Smith, eds. Pp. 16-21. XII INQUA Congress. National Research Council of Canada, Ottawa, ON.

Wheeler, J.O., 1961. Whitehorse map-area, Yukon Territory (105D). Geological Survey of Canada, Memoir 312: 156.

Workman, William B. 1973. The Cultural Significance of a Volcanic Ash which Fell in the Upper Yukon Basin About 1400 Years Ago. In International Conference on the Prehistory and Paleoecology of Western North American Arctic and Subarctic, edited by S. Raymond and P. Schledermann, pp. 238–261. University of Calgary Archaeological Association, Calgary.

Workman, William B. 1978. Prehistory of the Aishihik-Kluane Area, Southwest Yukon Territory. National Museum of Man Mercury Series. Archaeological Survey of Canada Paper No. 74. National Museums of Canada, Ottawa.

Workman, William B. 1979. The Significance of Volcanism in the Prehistory of Subarctic Northwest North America. In Volcanic Activity and Human Ecology, edited by P.D. Sheets and D.K. Grayson, pp. 339–371.

YESAB Registry. 2022. https://yesabregistry.ca. site accessed 05/11/2022.

Young, Mark. 2014. Heritage Resources Inventory of the Southern Urban Containment Boundary Conducted Under Permit 13-23ASR. Stantec Consulting Ltd.

Young, Mark. 2018. Heritage Resource Inventory within the Whitehorse Municipal Boundary. Permit 17-17ASR. On file at Yukon Heritage Resources Unit, Whitehorse, Yukon

Appendix E Geotechnical Assessment

November 2, 2023

ISSUED FOR USE – Revision 1
FILE: 704-ENG.WARC04472-01
Via Email: lobirdliving@gmail.com

Lobird Living
3 28018 TWP Road 540
Parkland County, Alberta T7X 4A6

Attention: Dwight Chalifour – Owner and Developer

Subject: Geotechnical Evaluation – Lobird Residential Site Development
Lobird Subdivision Area - Whitehorse, Yukon

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Lobird Living to complete a geotechnical evaluation for the proposed country residential site development located directly west of the existing Lobird Subdivision.

Authorization to proceed with this project was in the form of a signed Services Agreement between Tetra Tech and Lobird Living (dated September 14, 2023).

This report summarizes the work completed and the conditions encountered, along with presenting recommendations to support design and construction.

2.0 GEOTECHNICAL TESTPITTING PROGRAM

On September 2, 2023, four testpits were excavated throughout the proposed development area. Testpits were excavated to various depths and samples were collected at regular intervals throughout the depth of each testpit excavation.

Beau Blakely Trucking provided the Linkbelt 145X4 tracked excavator utilized for this field investigation and Tetra Tech's site representative was Myles Plaunt CET, of the Whitehorse office.

Upon completion, all testpits were backfilled to grade and UTM coordinate locations were recorded. The testpit locations are presented on Figure 1 attached, and the detailed borehole logs describing the geotechnical conditions encountered and accompanying laboratory test result report forms are presented in Appendix A.

In addition to the four testpits excavated, a reconnaissance of the north end of the site was also completed to observe the extensive bedrock at surface.

Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

3.0 SITE DESCRIPTION & GEOTECHNICAL CONDITIONS

3.1 Surface Conditions & Terrain

The study area is located west and up-gradient of the existing Lobird Subdivision. The site is currently tree covered (much of the north half of the site has second growth tree cover) and there are numerous access trails dissecting the site in an east-west direction.

The site is fairly flat throughout the south end. Throughout the central and north end of the site, the area slopes upward to the west. The slopes are considered gentle (according to terrain mapping nomenclature – suggesting 7% to 16% slopes). The utility corridor clearing that defines the east edge of the site has a very steep backslope leading up onto the study area. *Stantec's planning team should review clauses 7.14 and 7.16, as well as Figure 7 in the new OCP and consider some contouring to relax the backslope angle*. *Dwight Chalifour of Lobird Living (Developer) has confirmed that fill material will be available for site grading and recontouring purposes.*

3.2 Geotechnical Conditions

3.2.1 Soil and Bedrock Conditions

As expected, the soil conditions throughout the study area are comprised of a thin organic root mat overlying a morainal till soil veneer (less than 1.0 m) or blanket (between 1.0 m and 10 m). At the Lobird site, the thickness of this soil unit is variable, ranging from greater than 4 m at the south end of the site (TP01); between 1.2 m and 3.0 m in the central portion of the site (TP02, TP03 and TP04); and a thin veneer or exposed bedrock throughout the north end of the site (where field work was limited to site reconnaissance to observe the bedrock conditions).

Along with the till soils, numerous large surficial boulders were noted. Based on laboratory test results, the till soils are classified as gravelly SAND and SILT with cobble and boulder sized pieces, and a trace of clay. The till soils were coarser in TP04 with increased gravel content. The till soils were noted as damp to moist and the soil consistency was estimated as compact to dense.

On sites throughout Whitehorse where there is shallow bedrock or bedrock at surface, there is usually a thin layer of weathered and frost shattered bedrock at, or near the surface. However, where bedrock was encountered in TP02 and TP03, the upper horizon of the bedrock was competent and very difficult to excavate.

The geotechnical conditions observed throughout the study area are detailed on the testpit logs presented in Appendix A.

3.2.2 Groundwater

No groundwater was encountered in any of the testpit excavations.

3.2.3 Seasonal Frost

No seasonal frost was encountered during the 2023 testpitting program.

4.0 CONSTRAINTS

While constraints due to topography are minimal for this site, the near surface bedrock throughout the north half of the site is considered to be a serious constaint that will affect roadway construction, foundation design and construction, and most importantly, on-site sewage disposal system design and installation.

RECOMMENDATIONS

4.1 Material Availability and Use

It has been confirmed by the development team that the release of lots throughout the study area may be staged. Lot sales throughout the south end of the subdivision will commence first and based on the site grading plan, any additional material will be used to provide additional soil cover throughout the north end of the site.

The till soils covering the site are acceptable for use during pregrading and roadway embankment construction. However, all large surficial boulders should be removed and placed where they won't affect roadway construction or lot development. Since the majority of the site will be constructed on slopes, the boulders may be ideal for retaining wall construction along driveways, etc, or for landscape features.

4.1.1 Compaction During Pre-Grading

It is recommended that all material placed during pre-grading be compacted to 98% of standard Proctor maximum dry density (SPMDD). If specific areas can be identified as green space or landscaped areas, the compaction specification can be relaxed to 95% SPMDD.

4.2 Underground Utilities Construction

It is understood that this subdivision will be constructed to a country residential standard and water and sewer servicing infrastructure is not being considered.

4.3 Roadway Structure

It is assumed that the roadways servicing the lots in this subdivision (refer to the Stantec Figure 3 Concept Plan), will either be gravel or BST (bituminous surface treatment) surfaced, as is consistent with the majority of the country residential subdivisions throughout Whitehorse. Presented below is the recommended roadway structure for the Lobird Development site.

- 150 mm of 20 mm crushed basecourse.
- 200 mm of 50 mm crushed sub-base.
- 600 mm of non-frost susceptible pit run for subgrade improvement.
- A subgrade surface that has been properly prepared to ensure stability.

Not only will this roadway structure carry traffic loads, it will provide enough of a roadway embankment to construct ditch lines and allow culvert placement to ensure proper control of surface water flow.

4.3.1 Imported Granular Materials

All imported granular material must meet the gradation limits presented in Table 1. If non-compliant materials are proposed, a sample can be submitted to Tetra Tech for testing, and an opinion regarding suitability for use can be provided.

Table 1: Imported Gravel Gradation Specifications

20 mm CRUSHED BASECOURSE AGGREGATE		50 mm CRUSHED SUB-BASE AGGREGATE		200 mm PIT RUN SUB-BASE AGGREGATE	
Particle Size (mm)	**% Passing by Mass**	**Particle Size (mm)**	**% Passing by Mass**	**Particle Size (mm)**	**% Passing by Mass**
20.000	100	50.000	100	200.000	100
12.500	64 – 100	25.000	55 - 100	80.000	75-100
5.000	36 – 72	12.500	42 - 84	25.000	55 - 100
1.250	12 – 42	5.000	26 - 65	12.500	42 - 84
0.315	4 – 22	1.250	11 - 47	5.000	26 - 65
0.080	3 - 6	0.315	3 - 30	1.250	11 - 47
		0.080	0 - 8	0.315	3 - 30
				0.080	0 - 8

Note: Gradation Specifications from City of Whitehorse Servicing Standards Manual

4.3.2 Placement and Compaction

All sub-base materials must be placed in lifts not exceeding 200 mm in compacted thickness and moisture conditioned to within 2% of the optimum moisture content to facilitate compaction.

The crushed 20 mm basecourse aggregate can be placed in a single lift, and final tight-blading and re-compaction to 100% of Standard Proctor maximum dry density (SPMDD) should be performed immediately prior to BST surfacing.

Sub-Base gravels must be compacted to 98% of SPMDD.

Additional sub-excavation may be required if soft unstable areas are encountered during roadway construction. Typically, an additional 500 mm subcut, followed by the placement of geotextile and 200 mm pit run sub-base material which is properly moisture conditioned and compacted will provide the necessary stability. When the subcut areas are being backfilled, all material must be compacted to at least 98% of SPMDD.

4.4 Foundations

Shallow foundation systems are considered acceptable for this subdivision development. In areas with adequate soil cover, strip and spread footing foundation systems are feasible and in areas where shallow bedrock exists, a thickened monolithic slab-on-grade constructed on an engineered fill may be preferable. If foundations are to be constructed on an exposed bedrock surface, input from a structural engineer will be required to ensure lateral stability.

The till soils covering the site are frost susceptible and not considered to be free draining. Foundation systems will have to adhere to the City of Whitehorse's *Drainage Standards For Building Foundations* building advisory. The prescriptive measures are based on CAN-CSA S406 for preserved wood foundations (requiring granular

drainage layers under footings and foundation slabs), or NBCC Section 9.14 “Drainage” for concrete foundations (requiring a perimeter drainage system and a sump pit).

Shallow foundation systems constructed on frost susceptible soils will likely require perimeter insulation unless footings are founded at more than 2.5 m depth.

Finally, for all foundations, lot grading must ensure roof and surface runoff away from foundation elements.

4.5 Minimum Lot Size & On-Site Sewage Disposal System Construction

Minimum lot size has to be considered for country residential subdivision development. There must be space for a residential structure, a residential water supply well (unless water supply is from a different source) and an on-site sewage disposal system (along with the setback distances dictated by Environmental Health Services). It is important to note that high density urban development is not being considered for this development and based on the Stantec Figure 3 Concept Plan, the proposed 0.5 ha lot site is considered acceptable.

Shallow bedrock will be a factor for on-site sewage disposal system construction. Where there is adequate soil cover, the till soils are considered an appropriate “accepting soil”. Lab testing included the completion of particle size distribution testing (by hydrometer) to determine the gravel, sand and clay content of the till soils at 1.0 m depth. Gravel and Sand contents varied from 58% to 69% and clay contents varied from 3% to 8%. Plotting these results on the *CSA B65-12 Installation Code For Decentralized Waste Water Systems* “Soil Textural Triangle” suggests that the till can be classified as sand loam and Table 12 of the same standard indicates that a percolation rate of 24 minutes/25 mm can be used for absorption field sizing calculations (percolation testing will still have to be completed on each lot to confirm).

In areas where there is shallow bedrock or bedrock at surface, Government of Yukon – Environmental Health Services will likely dictate that an ‘Engineered systems’ could be a viable option and will likely be a raised bed system or a combination of mechanical sewage treatment with raised bed system that would designed and constructed on a parcel-by-parcel basis. To ensure proper tratement and disposal, raised bed systems are typically constructed using filter sand (or an approved alternate) which has been placed in lifts and compacted to facilitate a 5 minute/25 mm percolation rate. Gentle 3H:1V sideslopes are also important so that the potential for treated effluent to daylight is mitigated.

During pregrading of the lots throughout the north end, gravel or till fill soils placed throughout the area where the absorption system will be located should not be over-compacted (materials placed in lifts and nominally compacted to a 10 minute/25 mm percolation rate would be ideal. Infiltration into the underlying fill soils will also also ensure that daylighting will not occur.

4.6 Residential Water Supply

Potential for water wells to provide an adequate supply has been addressed in previous correspondence. Discussion included information presented in a previous Tetra Tech report (File No ENG.WARC03056-01 - 2017). This information is summarized below.

- Water wells drilled in the Lobird area will be completed in either granite from the Mt. McIntyre Plutonic Suite or .granodiorite from the Whitehorse Plutonic Suite. Both rock formations are igneous with very low permeability and groundwater in these formations would be limited to fractures associated with faults and open joints.
- Water wells in the Ice Lake and Lobird area are considered representative for these formations and the seven area wells produce relatively low yields. Driller’s estimates for well capacity ranged from 0.04 L/s to 0.4 L/s

(domestic water supply typically requires 0.25 L/s). Borderline yields has resulted in wells that are drilled to a deeper depth for increased storage and equipped with appropriately sized pressure tanks.

- There is a water well located on the south east corner of Lot 14. Recently, Cathway completed drawdown and flow testing and proved it to be a viable well for residential use. The well depth was greater than 500'; the static water level was 136' and there was a flow rate of 0.25 GPM. Cathway's report is attached and it provides an opinion that there are aquifers feeding the bedrock wells in the area and as long as the wells are deep enough, there will be enough head to supply a household.
- Water quality was not confirmed by Tetra Tech in the 2017 study but perhaps Lobird Living can confirm water chemistry and compliance with the *Guidelines For Drinking Water Quality*.

5.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Lobird Living and their agents. Tetra Tech Canada Inc. (operating as Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than Lobird Living, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

PROFESSIONAL
YUKON
CHADWICK P. COWAN
TERRITORY
ENGINEER

FILE: 704-ENG.WARC04472-01
FILE: 704-ENG.WARC04472-01
FILE: 704-ENG.WARC04472-01

2023-11-002
FILE: 704-ENG.WARC04472-01
FILE: 704-ENG.WARC04472-01
FILE: 704-ENG.WARC04472-01

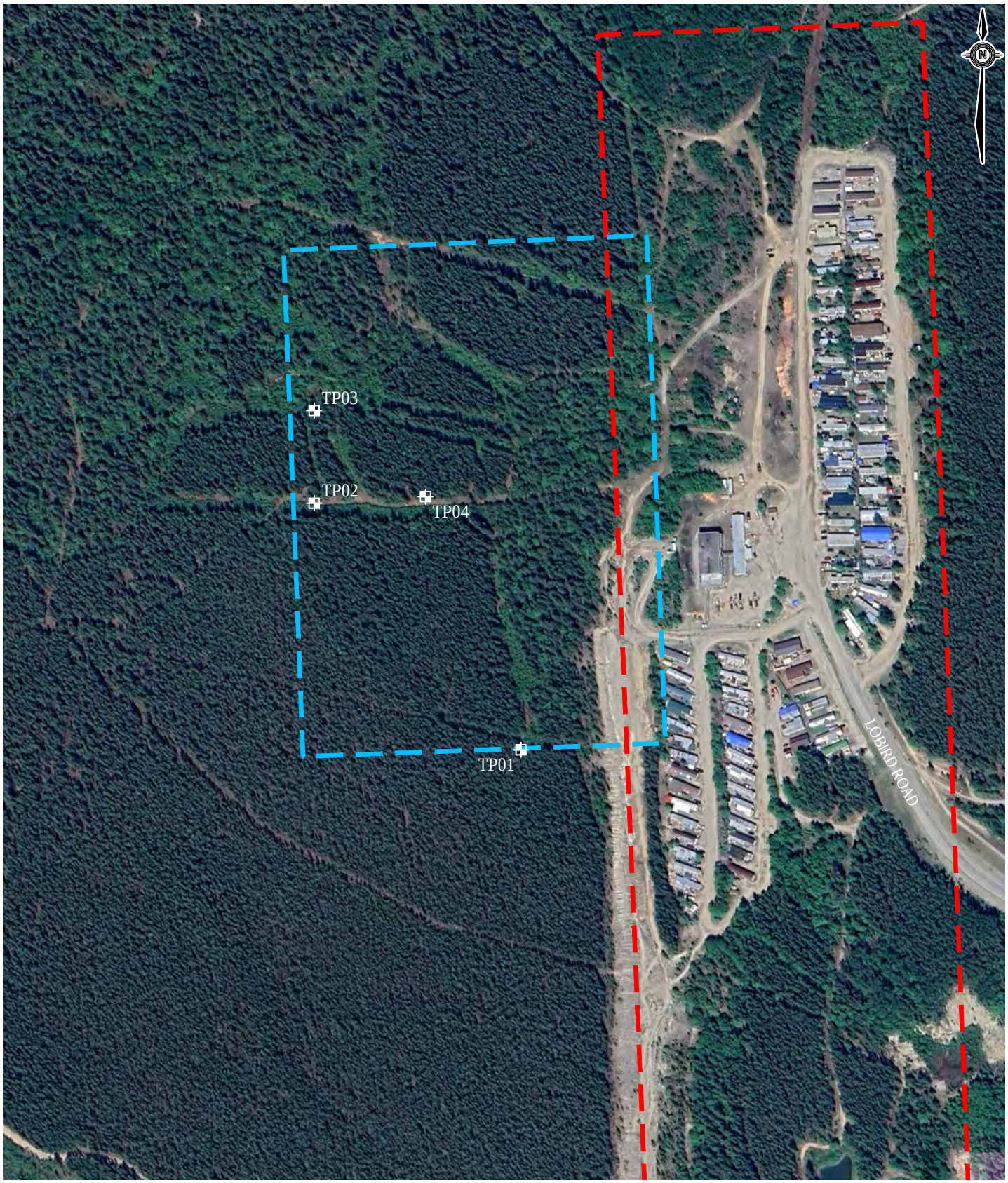
Prepared by:
Myles Plaunt, CET
Senior Engineering Technologist, Arctic Region
Direct Line: 867.668.9217
Myles.Plaunt@tetratech.com

Reviewed by:
Chad Cowan, P.Eng.
Geotechnical Manager, Yukon – Arctic Region
Direct Line: 867.668.9214
Chad.Cowan@tetratech.com

/et

FIGURES

Figure 1 Site Plan Showing Testpit Locations



LEGEND

- TESTPIT LOCATION

0 200m

Scale: 1:4,000 @ 8.5"x11"

CLIENT

LOBIRD LIVING

TETRA TECH

LOBIRD LIVING SITE DEVELOPMENT
WHITEHORSE, YUKON

SITE PLAN SHOWING TESTPIT LOCATIONS

PROJECT NO.	DWN	CKD	REV
ENG.WARC04472-01	CB	MCP	0
OFFICE	DATE		
EBA_WHSE	September 29, 2023		

Figure 1

Q:\Whitehorse\Data\0201drawings\Whitehorse\ENG-WARC\ENG\WARC04472-01 Lobird Living Site Development\ENG.WARC04472-01 Fig.1-R0.dwg [FIGURE 1] September 29, 2023 - 4:21:26 pm (BY: BUCHAN, CAMERON)

APPENDIX A

TESTPIT LOGS & ACCOMPANYING LABORATORY TEST RESULT REPORT FORMS

CATHWAY WATER WELL REPORT

Lobird Living

Testpit No: **TP01**

Project: Lobird Living Country Residential Development	Project No: ENG.WARC04472-01
Location: Lobird Subdivision	
Whitehorse, Yukon	UTM: 495536 E; 6727454 N; Z 8

Depth (m)	Method	Soil Description	Ground Ice Description	Sample Type	Moisture Content (%)
0		ORGANIC ROOT MAT - moist, black, (100 mm thick)	Unfrozen		
	Excavated	SILT AND SAND (TILL) - gravelly, cobbles and boulders, damp, compact, increasingly dense with depth, brown			14
		- greyish brown			6.8
1					
2					6.6
3					4
4					4.8
		END OF TESTPIT (4.0 metres)			
5					

Plastic Limit — Moisture Content — Liquid Limit (20, 40, 60, 80)

Depth (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

TETRA TECH

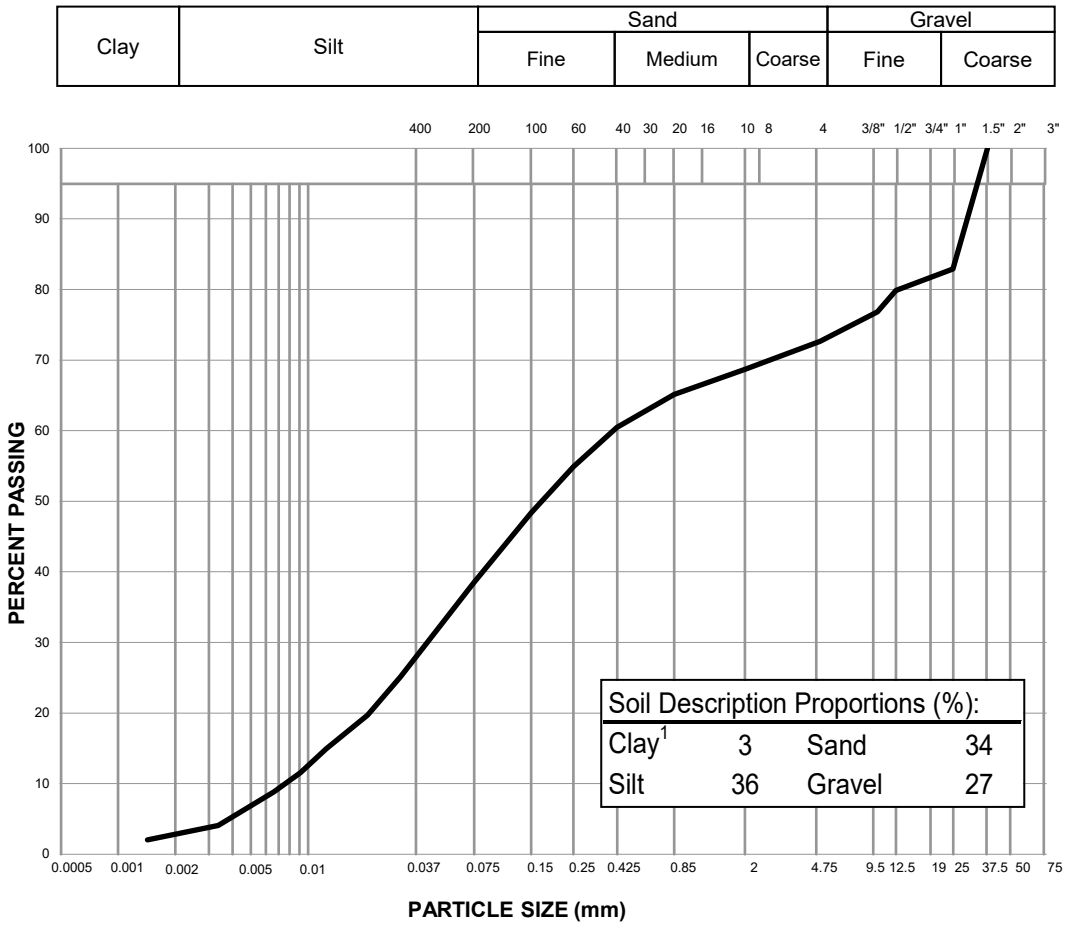
Contractor: Beau Blakely Trucking	Completion Depth: 4 m
Equipment Type: Linkbelt 145X4 Tracked Excavator	Start Date: 2023 September 9
Logged By: MCP	Completion Date: 2023 September 9
Reviewed By: CPC	Page 1 of 1

PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

Project:	Lobird Living Site Development	Sample No.:	-
Project No.:	ENG.WARC04472-01	Material Type:	-
Site:	Lobird Trailer Park	Sample Loc.:	TP01
Client:	Lobird Living	Sample Depth:	1.0 m
Client Rep.:	Dwight Chalifour	Sampling Method:	Grab
Date Tested:	September 17, 2023 By: MCP	Date Sampled:	September 9, 2023
Soil Description[2]:	SILT - sandy, gravelly, trace clay	Sampled By:	MCP
		USC Classification:	ML Cu: 53.4
Moisture Content:	6.8%		Cc: 0.7

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	83
19	
12.5	80
10	77
5	73
2	69
0.85	65
0.425	60
0.25	55
0.15	48
0.075	38.5
0.0307	25.2
0.0206	19.7
0.0125	15.0
0.0091	11.6
0.0066	8.8
0.0034	4.1
0.0014	2.0



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

Remarks: _____

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

Lobird Living

Testpit No: **TP02**

Project: Lobird Living Country Residential Development	Project No: ENG.WARC04472-01
Location: Lobird Subdivision	
Whitehorse, Yukon	UTM: 495380 E; 6727640 N; Z 8

Depth (m)	Method	Soil Description	Ground Ice Description	Sample Type	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Depth (ft)
0							0
	Excavated	ORGANIC ROOT MAT - moist, black, (100 mm thick)	Unfrozen				
		SAND AND SILT (TILL) - some gravel, trace clay, cobbles and boulders throughout, damp, compact, dense with depth					1
					7.3	●	2
1					8	●	3
							4
							5
					8	●	6
2		END OF TESTPIT (2.0 metres) Note: Stopped due to refusal on competent bedrock					7
							8
							9
3							10
							11
							12
4							13
							14
							15
5							16

Contractor: Beau Blakely Trucking	Completion Depth: 2 m
Equipment Type: Linkbelt 145X4 Tracked Excavator	Start Date: 2023 September 9
Logged By: MCP	Completion Date: 2023 September 9
Reviewed By: CPC	Page 1 of 1

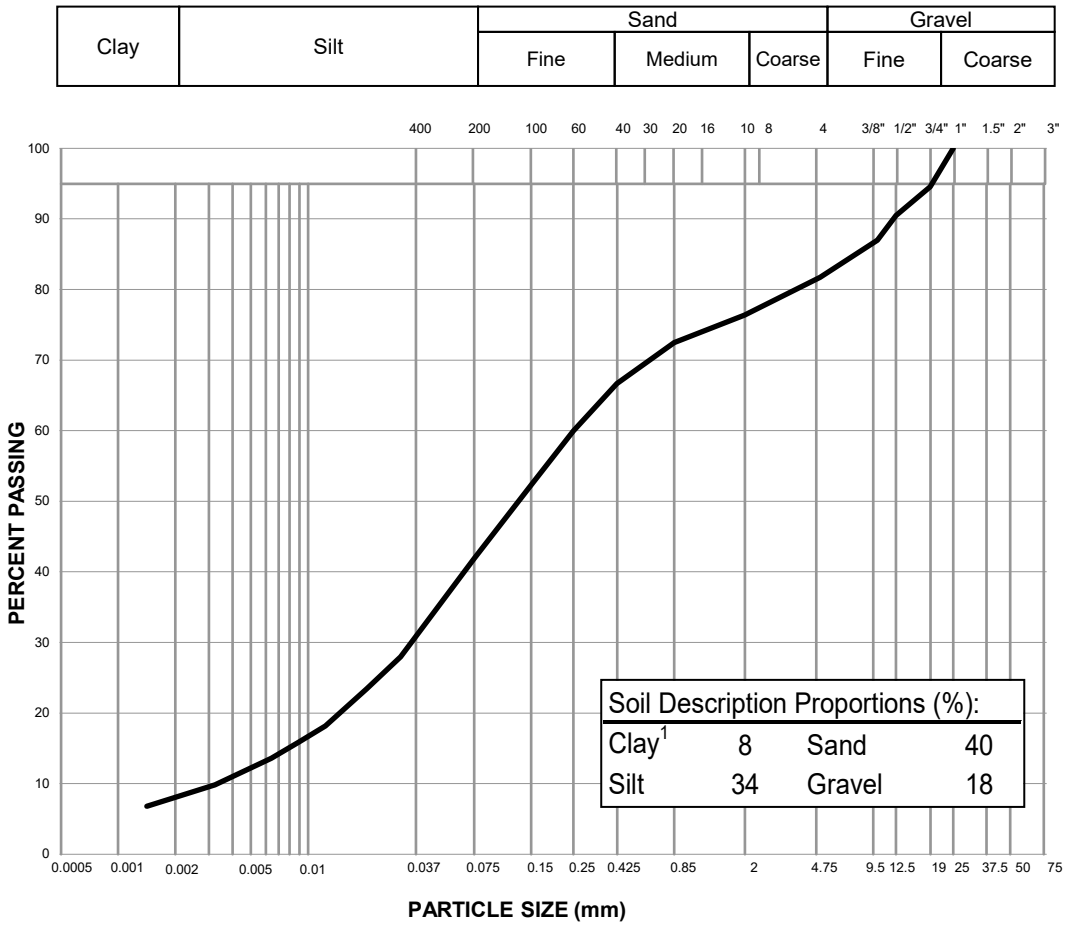
TETRA TECH

PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

Project:	Lobird Living Site Development	Sample No.:	-
Project No.:	ENG.WARC04472-01	Material Type:	-
Site:	Lobird Trailer Park	Sample Loc.:	TP02
Client:	Lobird Living	Sample Depth:	1.0 m
Client Rep.:	Dwight Chalifour	Sampling Method:	Grab
Date Tested:	September 17, 2023 By: MCP	Date Sampled:	September 9, 2023
Soil Description[2]:	SAND - silty, some gravel, trace clay	Sampled By:	MCP
		USC Classification:	SM Cu: 74.2
Moisture Content:	8.0%		Cc: 1.6

Particle Size (mm)	Percent Passing
75	
50	
38	
25	100
19	95
12.5	90
10	87
5	82
2	76
0.85	72
0.425	67
0.25	60
0.15	52
0.075	41.9
0.0307	28.0
0.0204	23.4
0.0124	18.1
0.0089	15.9
0.0064	13.6
0.0032	9.8
0.0014	6.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

Remarks: _____

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

Lobird Living

Testpit No: **TP03**

Project: Lobird Living Country Residential Development	Project No: ENG.WARC04472-01
Location: Lobird Subdivision	
Whitehorse, Yukon	UTM: 495380 E; 6727710 N; Z 8

Depth (m)	Method	Soil Description	Ground Ice Description	Sample Type	Moisture Content (%)	Plastic Limit / Moisture Content / Liquid Limit (20 40 60 80)	Depth (ft)
0							0
	Excavated	SAND AND SILT (TILL) - gravelly, trace clay, cobbles and boulders throughout, damp, compact, grey	Unfrozen		8.9	●	1
							2
1					6.6	●	3
		END OF TESTPIT (1.2 metres) Note: Stopped due to refusal on competent bedrock Area was previously cleared, very thin veneer of organics had re-established					4
							5
2							6
							7
							8
							9
3							10
							11
							12
4							13
							14
							15
5							16

TETRA TECH

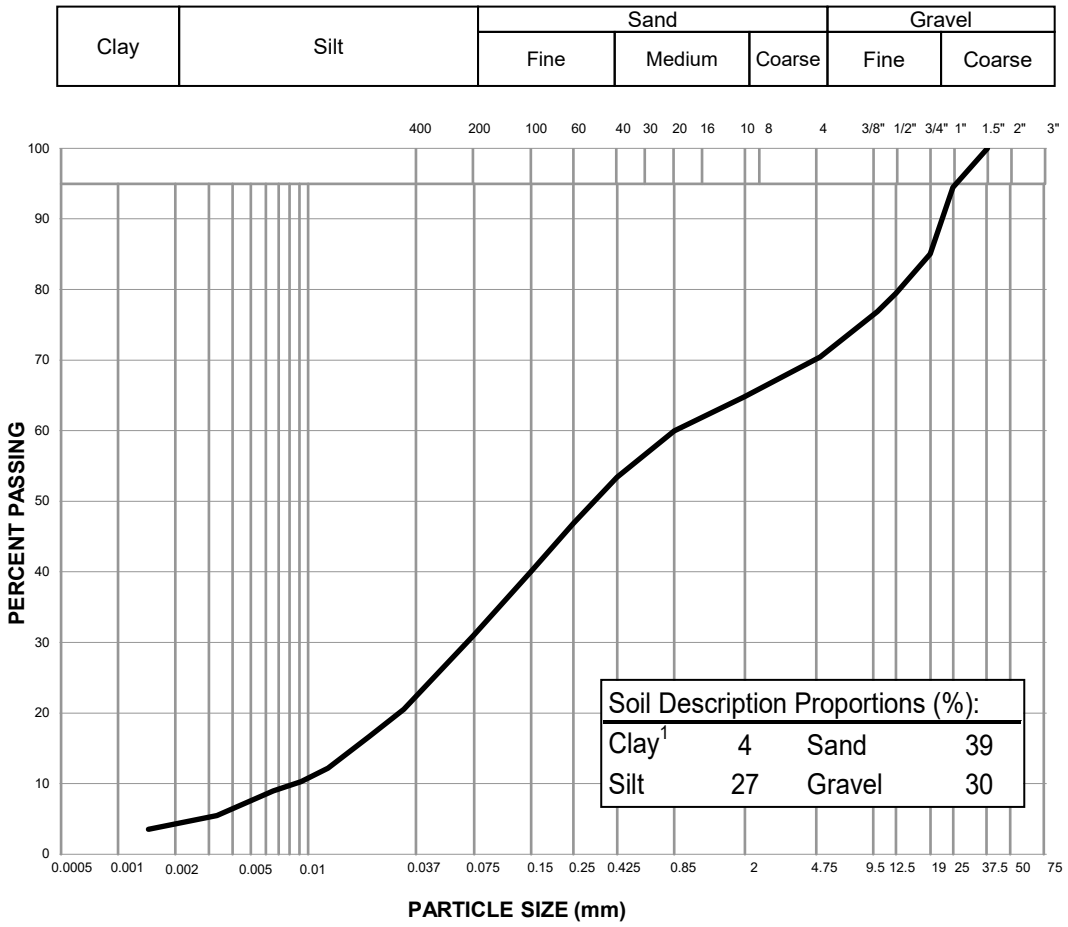
Contractor: Beau Blakely Trucking	Completion Depth: 1.2 m
Equipment Type: Linkbelt 145X4 Tracked Excavator	Start Date: 2023 September 9
Logged By: MCP	Completion Date: 2023 September 9
Reviewed By: CPC	Page 1 of 1

PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

Project:	Lobird Living Site Development	Sample No.:	-
Project No.:	ENG.WARC04472-01	Material Type:	-
Site:	Lobird Trailer Park	Sample Loc.:	TP03
Client:	Lobird Living	Sample Depth:	1.0 m
Client Rep.:	Dwight Chalifour	Sampling Method:	Grab
Date Tested:	September 17, 2023 By: MCP	Date Sampled:	September 9, 2023
Soil Description[2]:	SAND - silty, gravelly, trace clay	Sampled By:	MCP
		USC Classification:	SM Cu: 99.5
Moisture Content:	6.6%		Cc: 0.7

Particle Size (mm)	Percent Passing
75	
50	
38	100
25	94
19	85
12.5	79
10	77
5	70
2	65
0.85	60
0.425	53
0.25	47
0.15	40
0.075	31.0
0.0321	20.5
0.0211	16.7
0.0128	12.2
0.0092	10.3
0.0066	9.0
0.0033	5.5
0.0014	3.5



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual

[2] The description is visually based & subject to Tetra Tech description protocols

Specification: _____

Remarks: _____

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

Lobird Living

Testpit No: **TP04**

Project: Lobird Living Country Residential Development	Project No: ENG.WARC04472-01
Location: Lobird Subdivision	
Whitehorse, Yukon	UTM: 495464 E; 6727645 N; Z 8

Depth (m)	Method	Soil Description	Ground Ice Description	Sample Type	Moisture Content (%)
0	Excavated	ORGANIC ROOT MAT - moist, black, (200 mm thick) - numerous surface boulders	Unfrozen		
		GRAVEL (TILL) - sandy, silty, trace clay, cobbles and boulders throughout, damp, compact, greyish brown			4.1
1					7.2
2					5.3
3					6.6
		END OF TESTPIT (3.0 metres)			
4					
5					

Plastic Limit — Moisture Content — Liquid Limit (20 40 60 80)

Depth (ft): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

TETRA TECH

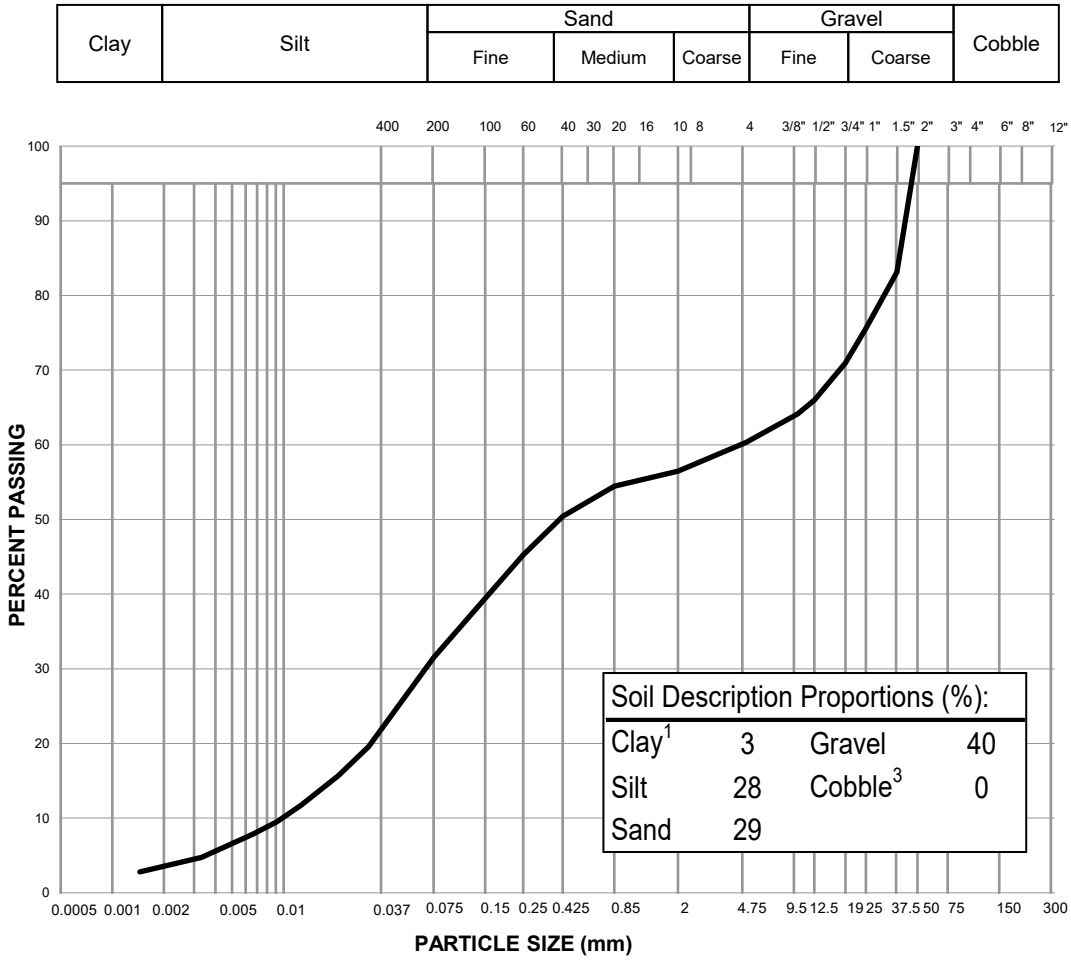
Contractor: Beau Blakely Trucking	Completion Depth: 3 m
Equipment Type: Linkbelt 145X4 Tracked Excavator	Start Date: 2023 September 9
Logged By: MCP	Completion Date: 2023 September 9
Reviewed By: CPC	Page 1 of 1

PARTICLE SIZE ANALYSIS REPORT

ASTM D7928 & C136

Project:	Lobird Living Site Development	Sample No.:	-
Project No.:	ENG.WARC04472-01	Material Type:	-
Site:	Lobird Trailer Park	Sample Loc.:	TP04
Client:	Lobird Living	Sample Depth:	2.0 m
Client Rep.:	Dwight Chalifour	Sampling Method:	Grab
Date Tested:	September 17, 2023 By: MCP	Date Sampled:	September 9, 2023
Soil Description[2]:	GRAVEL - sandy, silty, trace clay	Sampled By:	MCP
		USC Classification:	GM Cu: 478.2
Moisture Content:	5.3%		Cc: 0.1

Particle Size (mm)	Percent Passing
300	
200	
150	
100	
75	
50	100
38	83
25	76
19	71
12.5	66
10	64
5	60
2	56
0.85	54
0.425	50
0.25	45
0.15	39
0.075	31.5
0.0313	19.6
0.0208	15.7
0.0126	11.7
0.0091	9.5
0.0066	7.8
0.0033	4.8
0.0014	2.8



Notes: [1] The upper clay size of 2 um, per the Canadian Foundation Engineering Manual [2] The description is visually based & subject to Tetra Tech description protocols [3] If cobbles are present, sampling procedure may not meet ASTM C702 & D75

Specification: _____

Remarks: _____

Reviewed By: _____ C.E.T.

Data presented hereon is for the sole use of the stipulated client. Tetra Tech is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of Tetra Tech. The testing services reported herein have been performed to recognized industry standards, unless noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, Tetra Tech will provide it upon written request.

TETRA TECH

Well Testing LOT 14

10-18-2018

Depth: 500'+
Static: Level: 136'
Flow Rate: .25 GPM

The drawdown and flow testing found that we have a viable well to feed a residential home due to the volume of water in the well column combined with the recovery rate. The existing wells in the area prove that there are aquifers feeding the bedrock wells in the area. It is Cathway's position that viable domestic water wells could be drilled on the properties in the vicinity.

Average household demand for four people is 400 GPD and this well has enough head to more than accommodate that type of demand in perpetuity.

Jordan Shaw
General Manager

101B Copper Road,
Whitehorse YT,
Y1A 2Z7

www.cathwaywater.ca
o: 867-668-7208
c: 867-689-9550

APPENDIX B

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOTECHNICAL

1.1 USE OF DOCUMENT AND OWNERSHIP

This document pertains to a specific site, a specific development, and a specific scope of work. The document may include plans, drawings, profiles and other supporting documents that collectively constitute the document (the "Professional Document").

The Professional Document is intended for the sole use of TETRA TECH's Client (the "Client") as specifically identified in the TETRA TECH Services Agreement or other Contractual Agreement entered into with the Client (either of which is termed the "Contract" herein). TETRA TECH does not accept any responsibility for the accuracy of any of the data, analyses, recommendations or other contents of the Professional Document when it is used or relied upon by any party other than the Client, unless authorized in writing by TETRA TECH.

Any unauthorized use of the Professional Document is at the sole risk of the user. TETRA TECH accepts no responsibility whatsoever for any loss or damage where such loss or damage is alleged to be or, is in fact, caused by the unauthorized use of the Professional Document.

Where TETRA TECH has expressly authorized the use of the Professional Document by a third party (an "Authorized Party"), consideration for such authorization is the Authorized Party's acceptance of these Limitations on Use of this Document as well as any limitations on liability contained in the Contract with the Client (all of which is collectively termed the "Limitations on Liability"). The Authorized Party should carefully review both these Limitations on Use of this Document and the Contract prior to making any use of the Professional Document. Any use made of the Professional Document by an Authorized Party constitutes the Authorized Party's express acceptance of, and agreement to, the Limitations on Liability.

The Professional Document and any other form or type of data or documents generated by TETRA TECH during the performance of the work are TETRA TECH's professional work product and shall remain the copyright property of TETRA TECH.

The Professional Document is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of TETRA TECH. Additional copies of the Document, if required, may be obtained upon request.

1.2 ALTERNATIVE DOCUMENT FORMAT

Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this document, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, TETRA TECH has not been retained to explore, address or consider and has not explored, addressed or considered any environmental or regulatory issues associated with development on the subject site.

1.8 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems, methods and standards employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. TETRA TECH does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

1.9 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

1.10 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historical environment. TETRA TECH does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional exploration and review may be necessary.

1.11 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

1.12 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

1.13 INFLUENCE OF CONSTRUCTION ACTIVITY

Construction activity can impact structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques, and construction sequence are known.

1.14 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, and the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

1.15 DRAINAGE SYSTEMS

Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function. Where temporary or permanent drainage systems are installed within or around a structure, these systems must protect the structure from loss of ground due to mechanisms such as internal erosion and must be designed so as to assure continued satisfactory performance of the drains. Specific design details regarding the geotechnical aspects of such systems (e.g. bedding material, surrounding soil, soil cover, geotextile type) should be reviewed by the geotechnical engineer to confirm the performance of the system is consistent with the conditions used in the geotechnical design.

1.16 DESIGN PARAMETERS

Bearing capacities for Limit States or Allowable Stress Design, strength/stiffness properties and similar geotechnical design parameters quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition used in this report. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions considered in this report in fact exist at the site.

1.17 SAMPLES

TETRA TECH will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

1.18 APPLICABLE CODES, STANDARDS, GUIDELINES & BEST PRACTICE

This document has been prepared based on the applicable codes, standards, guidelines or best practice as identified in the report. Some mandated codes, standards and guidelines (such as ASTM, AASHTO Bridge Design/Construction Codes, Canadian Highway Bridge Design Code, National/Provincial Building Codes) are routinely updated and corrections made. TETRA TECH cannot predict nor be held liable for any such future changes, amendments, errors or omissions in these documents that may have a bearing on the assessment, design or analyses included in this report.

Appendix F Environmental Site Assessment

Phase I Environmental Site Assessment

Lobird Estates Country Residential Development
Whitehorse, Yukon

April 4, 2025

Prepared for:
Lobird Living Corp.
3-28018 TWP RD 540 Parkland County AB, T7X 4A6

Prepared by:
Stantec Consulting Ltd.

Project/File:
115825012

Stantec

Limitations and Sign-off

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or subsurface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

The conclusions are based on the site conditions encountered by Stantec at the time the work was performed. Due to the nature of the investigation and the limited data available, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site. As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.

Prepared by: Roshani, Anis

Digitally signed by Roshani, Anis
Date: 2025.04.07 08:47:18 -07'00'

Signature

Anis Roshani, P. Eng. (Ontario)

Reviewed by:

Digitally signed by Deane, Matthew
Date: 2025.04.07 08:38:16 -07'00'

Signature

Matthew Deane, P.Ag.

Approved by:

Redmond, Matthew
2025.04.07 08:58:37 -07'00'

Signature

Matthew Redmond, P.Eng.

Executive Summary

Stantec Consulting Ltd. (Stantec) conducted a Phase I Environmental Site Assessment (ESA) at the Lobird Estates residential community and surrounding undeveloped/forested areas, located in Whitehorse, Yukon Territory (YT), herein referred to as the “Site”. The Phase I ESA was prepared for the Lobird Living Corp (the “Client”) in support of the pre-planning suitability analysis of the Site. Stantec understands that the Client is interested in developing the western area of the Site, herein referred to as the “Development Area”.

The Phase I ESA was conducted in general accordance with *CSA Standard Z768-01 (R2022) - Phase I Environmental Site Assessment Standard* and Stantec’s proposal submitted to the Client on February 20, 2025. The primary objective of the Phase I ESA was to identify on-site and off-site areas of potential environmental concern (APECs), and relevant potential contaminants of concern (PCOCs), associated with current and historical land use activities at the Site and adjacent or nearby properties.

The Site was a military radio station, stood-up as No. 5 Radio Unit from the late 1940s and was operational to early 1970s, at which point it the main building was renovated to be used as residential apartments. Residential development at the Site began in the early 1970s, with buildings appearing on the east/southeast sides of the Site along the Lobird Court and Hamilton Boulevard at that time.

The Phase I ESA has revealed evidence of APECs associated with the Site; however, none within the Development Area. Based on the information gathered and observations noted, three on-site and one off-site APECs were identified, which are listed in Table E-1 along with their associated PCOCs, and discussed below.

Table E-1 APECs and PCOCs

APEC	PCOC
APEC 1: Historical On-Site Spill at 17 Lobird Court in 2001	Light Extractable Petroleum Hydrocarbons (LEPH), Heavy Extractable Petroleum Hydrocarbons (HEPH), Polycyclic Aromatic Hydrocarbons (PAH), Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Volatile Petroleum Hydrocarbons (VPH), Volatile Organic Component (VOC)
APEC 2: Historical Radio Site, Operation from late 1940s to early 1970s	LEPH, HEPH, PAH, BTEX, VPH, VOC
APEC 3: On-site Sewage Lagoons	Ammonia, Nitrate, heavy metals, PAH
APEC 4: Reported Spill adjacent to the Site	LEPH, HEPH, PAH, BTEX, VPH, VOC

APEC 1 – On-Site Spill at 17 Lobird Court (Latitude 60.68411, Longitude -135.07675)

In May 2001, approximately 455 liters of heating oil were spilled from an overturned tank, with the oil observed soaking into the ground adjacent to an existing mobile home. No reports were submitted regarding the follow-up or resolution of the incident.

APEC 2 – Historical Radio Site, Operation from late 1940s to early 1970s

Based on aerial photos and current or historical activities and operations, it is possible that the Radio Site, including the former Operations and Admin building, which was operational from the late 1940s to the early 1970s, may have had diesel backup generators, fuel storage, and likely heating oil storage. These potential components are considered a potential environmental concern for the Site.

APEC 3 – On-site Sewage Lagoons

Based on the information gathered during the site visit and from the current owner, the first sewage lagoons have been present on the southern portion of the Site since 1969. The sewage lagoons are a Schedule 2 Activity (H17 – sewage lagoons or impoundments) in the BC Contaminated Site Regulation (used for comparison in absence of a similar Yukon subscribed activities) and considered to be a potential environmental concern to the Site.

APEC 4 – Off-site Reported Spill

A spill, report was provided in the Contaminated Sites Inventory (CSI) for Lobird Court between Hamilton Boulevard and McLean Lake Road in June 2003, approximately 25 m east of the Site. This listing is aligned with the off-site listing identified on the Yukon Contaminated Sites Information Map. The listing indicates that an unknown volume of oil and diesel reportedly leaked from a semi truck on Lobird Road. An investigation and further study were planned but no results were submitted. Given the proximity to the Site, the reported spill is considered a potential environmental concern.

The Phase I ESA did not identify APECs within the Development Area. No further investigation is recommended for the Development Area.

Based on the findings of the Phase I ESA, outside of the Development Area, but within the Site, three APECs associated with historical and current activities were identified. Stantec recommends conducting a Phase II ESA to confirm the presence or absence of contamination related to APECs. This assessment should also evaluate the extent of the on-site spill (APEC 1) and determine the type, volume, and potential spread of the spilled material. Soil, water, and air samples should be collected to identify contamination levels and assess potential risks to the surrounding environment.

Based on the age of the site buildings (as early as the late 1940s), a Hazardous Building Material assessment should be conducted prior to any future physical alteration or renovation of on-site materials.

The statements made in this Executive Summary are subject to the same limitations included in the Limitations of this Report and are to be read in conjunction with the remainder of this report.

Table of Contents

Limitations and Sign-off ..... **i**
Executive Summary ..... **iii**
Acronyms / Abbreviations ..... **vii**
1 Introduction **1**
1.1 Scope of Work 1
1.2 Regulatory Framework 3
2 Site Conditions and Physiography **3**
2.1 Site Description 3
2.2 Topography and Regional Drainage 4
2.3 Adjacent Water Resources 4
2.4 Surficial Geology 4
2.5 Bedrock 4
2.6 Aquifers and Water Wells 5
2.7 Local Climate Conditions 5
3 Environmental Database Searches **6**
3.1 Yukon Contaminated Sites Information Map 6
3.2 Environmental Risk Information Services Search 6
3.2.1 Contaminated Site Inventory 6
3.2.2 Unplottable National Environmental Emergencies System 7
3.3 Previous Environmental Reports 7
3.4 Aerial Photographs 7
3.5 City Directories Search 8
3.6 Fire Insurance Plans 9
4 Site Visit **10**
4.1 Site Activities and Features 10
4.2 Hazardous Building Materials 11
4.2.1 Asbestos-Containing Materials (ACMs) 11
4.2.2 Polychlorinated Biphenyls (PCBs) 11
4.2.3 Lead-Based Building Materials 12
4.2.4 Urea Formaldehyde Foam Insulation (UFFI) 13
4.2.5 Ozone-Depleting Substances (ODSs) 13
4.3 Special Attention Items 14
4.3.1 Radon Gas 14
4.3.2 Microbial Contamination (Mould) 14
4.3.3 Electromagnetic Frequencies (EMF) 15
4.3.4 Noise and Vibration 15
5 Neighbouring Property Information **16**
6 Conclusions **17**
7 Recommendations **19**
8 References **20**

List of Tables

Table 2-1 **Site Identification** 3
Table 2-2 **Historical Climate Information – Whitehorse** 5
Table 3-1 **Unknown Contaminated Sites Information** 6
Table 3-2 **Summary of Aerial Photograph Review** 8
Table 5-1 **Neighbouring Property Information** 16
Table 6-1 **APECs and PCOCs** 17
Table 8-1 **Information Sources – Phase I ESA** 20

List of Appendices

Appendix A **Site Figures**
Appendix B **Assessor Qualifications**
Appendix C **Site Records**
Appendix D **Site Photographs**

Acronyms / Abbreviations

ACM	Asbestos-Containing Materials
AMP	Asbestos Management Plan
APEC	Areas of Potential Environmental Concern
AST	Aboveground Storage Tank
BC	British Columbia
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
EA	Environment Act
ESA	Environmental Site Assessment
CEPA	Canadian Environmental Protection Act
CFC	Chlorofluorocarbon
CS	Contaminated Sites Inventory
CSA	Canadian Standard Association
CSR	Contaminated Sites Regulation
EMF	Electro Magnetic Frequency
ERIS	Environmental Risk Information Services
ESA	Environmental Site Assessment
FIP	Fire Insurance Plan
HCFC	Hydrochlorofluorocarbons
HEPH	Heavy Extractable Petroleum Hydrocarbon
INAC	Yukon Department of Indian & Northern Affairs Canada
LEPH	Light Extractable Petroleum Hydrocarbon
m	Metres
mbgs	Meter Below Ground Surface
NEES	National Environmental Emergencies System
NPRI	National Pollutant Release Inventory
ODS	Ozone-Depleting Substance
OCP	Official Community Plan
PAH	Polycyclic Aromatic Hydrocarbon
PHC	Petroleum Hydrocarbon
PCB	Polychlorinated Biphenyls
PCOC	Potential Contaminants of Concern
PID	Parcel Identification Number
PPM	Part Per Million
SOR	Statutory Orders and Regulations
UFFI	Urea Formaldehyde Foam Insulation
UST	Underground Storage Tank
VOC	Volatile Organic Component
VPH	Volatile Petroleum Hydrocarbon
YESAB	Yukon Environmental and Socio-economic Assessment Board
YWWRDC	Yukon Water Well Registry and Data Catalogue

1 Introduction

Stantec Consulting Ltd. (Stantec) conducted a Phase I Environmental Site Assessment (ESA) at the Lobird Estates residential community and surrounding undeveloped/forested areas, located in Whitehorse, Yukon Territory (YT), herein referred to as the “Site”. The Phase I ESA was prepared for the Lobird Living Corp (the “Client”) in support of the pre-planning suitability analysis of the Site. Stantec understands that the Client is interested in developing the western area of the Site, herein referred to as the “Development Area”.

The purpose of the Phase I ESA was to assess if evidence of potential or actual environmental contamination exists in connection with the Site, which may be present as a result of current or past activities on the Site or adjacent/neighbouring properties. Stantec understands that the Client is interested in developing the western area of the Site, herein referred to as the “Development Area”.

A Site Location Plan and a Site and Surrounding Land Use Plan are included in Appendix A.

This Phase I ESA report was prepared by Ms. Anis Roshani, P. Eng. (Ontario) and reviewed by Mr. Matthew Deane, P. Ag. Qualifications for the assessment team are provided in Appendix B.

1.1 Scope of Work

The Phase I ESA carried out by Stantec on the Site was conducted in general accordance with the Canadian Standards Association's (CSA) *Phase I Environmental Site Assessment Standard Z768-01* (R2022).

The scope of work for this Phase I ESA included the following:

A review of available records, including (if available):

- Aerial photographs
- Property Use Records—land titles, lease records, building file information
- Existing Phase I ESAs or other environmental reports, if provided
- Environmental monitoring data
- Waste management records (such as waste manifests, polychlorinated biphenyls (PCBs) waste storage sites, etc.)
- Inventory of underground storage tanks (USTs) and above ground storage tanks (ASTs)
- Environmental audit reports
- Prior relevant reports and studies (including air, surface water, and groundwater quality data)
- Geological and Geotechnical reports
- Regulatory information (permits, contaminated sites registry, waste generator registries, spills database and other approvals under the Environment Act)

- Geology and soil maps
- Topographic maps
- Water Resources Branch, Government of Yukon - water well information database
- Yukon Contaminated Sites Information Map
- Agreement of purchase and sale (where it exists)
- Yukon Environmental and Socio-economic Assessment Board (YESAB) Online Registry
- Land Use Documents
- Local Information Sources
- Borehole and/or water well logs

A site visit was conducted to assess for actual or potential environmental contamination associated with the following:

- current site operations
- waste generation
- fuel, chemical, and waste storage
- exterior site conditions including surface features, fill material, and wells
- hazardous materials including asbestos containing materials (ACMs), PCBs, lead, urea formaldehyde foam insulation (UFFI), and ozone-depleting substances (ODSs)
- mold, radon, electromagnetic frequencies, noise, and vibrations
- potential off-site sources of contamination
- evaluation of information and preparation of this report

A Phase I ESA is a non-intrusive investigation and does not include sampling or testing of air, soil, groundwater, surface water, or building materials. For this Phase I ESA, no enhancements to the CSA standard were made.

The assessment of the Site for the potential presence of hazardous building materials was based on the age of building(s) and components that may be present on the Site, and a non-intrusive visual review of the Site. No sampling of materials was conducted. A Phase I ESA does not constitute a Hazardous Materials Survey, Designated Substances Survey or Indoor Environment Assessment, and does not include a review or audit of operational environmental compliance issues, or any environmental management systems, which may exist for the Site.

As the Site is situated in a rural area outside of the city of Whitehorse, no request was made for fire insurance plans (FIPs) as they were only developed for urban regions; therefore, FIPs were not reviewed during this Phase I ESA. Stantec is unaware of previous environmental reports that exist for the area. Person(s) familiar with the Site history were not available for interview during the preparation of this report. Further, the developed portion of the Site is residential and Stantec did not have permissions to enter private residences.

1.2 Regulatory Framework

Contaminated sites in Yukon are governed by the *Environment Act* (EA) and regulations thereto, including the *Contaminated Sites Regulation* (CSR) (Department of Environment, 2002), as well as protocols, procedures, and guidance documents established by the Government of Yukon, Department of Environment (Environment Yukon or EY). Under the EA, a contaminated site is defined as an area of land in which the soil, including any groundwater lying beneath it, or surface water including the sediment and bed below it, contains a contaminant which is in an amount, concentration, or level in excess of that prescribed by regulation or allowed under a permit. The CSR includes numerical standards for soil and groundwater quality for specific land and groundwater uses.

During a Phase I ESA samples are not collected; however, if there are previous soil or groundwater sample results available, the results are compared to applicable territorial and/or federal regulations and guidelines.

A Phase I ESA involves a review of site buildings for the potential presence of hazardous materials related to building components and materials. Specific federal or provincial regulations, guidelines or codes of practice exist for these individual hazardous materials. Where required, this documentation was utilized to determine appropriate conclusions and formulate appropriate recommendations.

2 Site Conditions and Physiography

2.1 Site Description

The Site is located in a predominantly undeveloped area located approximately 850 m west of the Alaska Highway. The Site is identified within the City of Whitehorse Official Community Plan (OCP) and surrounds and contains the Lobird Estates residential community. The Site is predominantly undeveloped forested land, except for the Lobird Estates residential community, Lobird Court, and an access road along the western side of the Site which provides access to an off-site trail named Adit Lane.

Site identification information is summarized in Table 2-1.

Table 2-1 Site Identification

Civic Address	200 Lobird Road
Current Owner	Lobird Living Corp
Current Owner Address	N/A
Legal Description	LOT 1207 QUAD 105D/11 – Northern Lot LOT 1206 QUAD 105D/11 – Southern Lot
PIN	8064530 – Lot 1207 8064529 – Lot 1206
Latitude/Longitude (approximate centroid of Site)	60°41'03.40"N 135°04'52.89"W

Area	222,623 m^2 – Lot 1207 166,963 m^2 – Lot 1206
Zoning	Residential Mobile Home Park (RP), Residential Multiple Housing (RM), Public Utilities (PU)
Elevation	Approximately 800 metres above sea level

Figures 1 and 2 in Appendix A indicate the location and extents of the Site.

2.2 Topography and Regional Drainage

Observations made during the site visit, coupled with analysis of the elevation map from GeoYukon (gov.yk.ca) indicate that the Site is predominantly flat. The Site is positioned on a ledge of a large hill, sloping steeply upwards to the west and downwards to the east

Based on the indicated and observed topography, the regional surface water drainage, including anticipated shallow groundwater flow, is anticipated to be directed towards the Yukon River, located approximately 2.2 km east of the Site. Surface water drainage on the Site is expected to occur through infiltration into the ground or runoff to storm ditches along the side of the roads.

2.3 Adjacent Water Resources

Based on the available data, there is an on-site sewage lagoon on the south portion of the Site. Additionally, Ice Lake is located approximately 540 m northeast of the Site. The Yukon River, which flows into Schwatka Lake, is situated roughly 2.2 km east of the Site.

2.4 Surficial Geology

Surficial geology mapping at the 1:50 000 scale produced by the Yukon Geological Survey (Bond, Morison and McKenna, 2005-2007- NTS 105D/11) indicates that soils at the Site consist of glacial deposits (Till), which are described as follows:

Sediment deposited directly by glacier ice without modification by any other agent of transportation. General Description: till can be transported beneath, beside, on, within and in front of a glacier. The mineraological, textural, structural and topographic characteristics of till deposits are highly variable and depend upon both the source of material incorporated by the glacier and the mode of deposition. In general, till consists of well compacted to noncompacted material that is non-stratified and contains a heterogeneous mixture of particle sizes, commonly in a matrix of sand, silt and clay.

A site-specific determination would be required to obtain detailed soil profiles and permeability information.

2.5 Bedrock

Based on GeoYukon (gov.yk.ca), bedrock in the area of the Site is indicated to be composed of the Whitehorse assemblage. Formed during Mesozoic era, in the Upper Cretaceous Epoch, the geological suit

is expected to be characterized by igneous, granodiorite, and quartz diorite plutonic rocks. There was no evidence of bedrock outcrop on the Site; however, the Site was covered in snow during the site visit.

2.6 Aquifers and Water Wells

The Yukon Water Well Registry and Data Catalogue (YWWRDC) were accessed on February 18, 2025, for information on groundwater monitoring and drinking water wells, as well as aquifer information for the Site and surrounding properties. No mapped aquifers were identified on the Site or within 250 m of the Site. Three on-site water wells were identified on the YWWRDC, located in the residential area of the Site; however, a total of eight wells were reported in the Yukon Source Water Supply Protection Study (Appendix B). The information of the three wells listed in the YWWRDC is summarized below:

- Lobird Trailer Park 06 (Borehole ID: 204110157) is a seasonal public supply well
- Lobird Trailer Park 07 (Borehole ID: 204110158) is a public supply well
- Lobird Trailer Park 08 (Borehole ID: 204110159) is a public supply well

2.7 Local Climate Conditions

Environment Canada climate normal data from the climate station Whitehorse (located approximately 4 km northeast of the Site) is presumed to be representative of the climate at the Site. Selected climate 1991-2020 station data are summarized below.

A copy of the Water Well Registry and Data Catalogue search is attached in Appendix C.

Table 2-2 Historical Climate Information – Whitehorse

Annual Precipitation	279.6 mm
Annual Rainfall	164.3 mm
Annual Snowfall	147.6 cm
Extreme Daily Rainfall	28.8 mm (June 30, 2010)
Extreme Daily Snowfall	18.0 cm (Dec 05, 2011)

3 Environmental Database Searches

The following sub-sections summarize the findings of the environmental database searches, and review of previous environmental reports, aerial photographs, and other available records.

3.1 Yukon Contaminated Sites Information Map

The Yukon Contaminated Sites Information Map (gov.yk.ca) was accessed on February 18, 2025, for information regarding contaminated sites on, and within 500 m of, the Site. There were two listings (both with a classification of "Unknown") identified, with one being located on-site in the eastern portion of the Site, and the other located off-site, adjacent to the east of the Site. Table 3-1 summarizes the information available for the two registered contaminated sites.

Table 3-1 Unknown Contaminated Sites Information

Site Name/ Civic Address	Proximity to the Site (m)	Contaminants of Concern	Summary	Land Use
17 Lobird Court, Whitehorse (Latitude 60.68411, Longitude -135.07675)	On-site	Petroleum Hydrocarbons (PHCs)	In May 2001, approximately 455 L of heating oil was spilt from an overturned tank. The heating oil was observed soaking into the ground. A soil vapour extraction system was installed by an environmental consultant. Reports were not submitted.	Residential
Lobird Court between Alaska Highway and McLean Lake, (Latitude 60.68201, Longitude -135.07527)	25	PHCs	In June 2003, an unknown volume of oil and diesel was reportedly leaking from a semi truck on Lobird Court. An investigation and further study was planned but no results were submitted.	Commercial

The listings above from the Yukon Contaminated Sites Information Map were cross-referenced with the ERIS report, which is discussed in detail in the following section. Further assessment of these findings is presented in Sections 3.2.1 and 3.2.2.

3.2 Environmental Risk Information Services Search

ERIS was retained to complete a search of relevant environmental databases for listings located within 250 m of the Site. ERIS completed the search on February 11, 2025.A summary of the identified pertinent listings is outlined below, and the detailed ERIS Report is included in Appendix C.

3.2.1 Contaminated Site Inventory

Yukon Indian & Northern Affairs Canada (INAC) Contaminated Sites Inventory (CSI) is an inventory of sites of potential environmental concern compiled by INAC.

The sites listed in this inventory may or may not be contaminated and could also contain solid waste, debris, old mining structures, or other materials. Being included on this list does not confirm contamination. Likewise, sites not listed should not be assumed to be free of contamination.

One off-site listing, located approximately 25 m east of the Site, was provided in the CSI for Lobird Court between Hamilton Boulevard and McLean Lake Road in June 2003. This listing is aligned with the off-site listing identified on the Yukon Contaminated Sites Information Map (Section 3.1). The listing indicates that an unknown volume of oil and diesel reportedly leaked from a semi truck on Lobird Road. An investigation and further study were planned but no results were submitted.

Given the proximity to the Site, the reported spill is considered a potential environmental concern.

3.2.2 Unplottable Entries

There were three unplottable listings, presumed to be unplottable due to lack of specific location data; however, two of the listings appear to be on the Site, and are summarized below.

A listing was provided in the National Environmental Emergencies System for the civic address of 17 Lobird Court, Whitehorse, located in the north portion of the Site which aligns with the on-site listing identified on the Yukon Contaminated Sites Information Map (Section 3.1). The listing indicates that in May 2001, approximately 455 L of heating oil was spilt from an overturned tank. The heating oil was observed soaking into the ground. A soil vapour extraction system was installed by an environmental consultant. Reports were not submitted.

A listing under the Historic Sites Inventory database for the Radar Apartments notes of the current and past use, as well as construction in 1946.

The Client has shared some information about the clean-up at the Site; however, Stantec is unable to confirm whether the results and clean-up efforts meet the required standards. Therefore, the reported spill is considered a potential environmental concern to the Site.

3.3 Previous Environmental Reports

Stantec was not provided with historical environmental reports for the Site or the surrounding properties for review.

3.4 Aerial Photographs

The first building on the Site was identified on aerial photos from 1952 which was located on the central portion of the Site. This building was a former operation and administration building for a military radio station (the Radio Site), stood-up as No. 5 Radio Unit from the late 1940s and was operational to early 1970s, at which point it was renovated to be used as residential apartments.

The Alaska Highway has consistently run approximately 850 m to the east of the Site during this time. Residential development began circa early 1970s, with buildings appearing on the east/southeast sides of the Site along the Lobird Court and Hamilton Boulevard. As of 2024, the Site and its surroundings closely

resemble the 2001 aerial photograph, with a few additional residential buildings constructed along the on the eastern neighbouring property.

Table 3-2 Summary of Aerial Photograph Review

Year	Description
1952	**Site**: the majority of the Site is undeveloped and covered in forest, some groundworks and clearing are identified on the east, west, and northwest portions. One building was identified on the central portion of the Site. This building was a former operation and administration building for a military radio station, built as No. 5 Radio Unit from the late 1940s. Lobird Court road seems to have its current alignment. **east:** undeveloped and covered in forest, Hamilton Boulevard seems to have its current alignment. **north, south:** undeveloped and covered in forest **west:** undeveloped and covered in forest, some clearings and groundworks were identified on the west and northwest properties
1961-1969	**Site:** remain in a similar condition as they were in 1952. **east, west, south, north** remain in a similar condition as they were in 1952.
1971-1976	**Site:** buildings, similar to current residential buildings, were identified on the eastern side of the Site circa 1970s. **east, west, south, north:** remain in a similar condition as they were in 1969
1976 -1985	**Site:** more structures and buildings were identified on eastern portions. **east, west, south, north:** remain in a similar condition as they were in 1976.
1992-2001	**Site:** more structures and buildings were identified on eastern portions. Some cleared sections within the Site seem to be reforested circa early 1990s. **east, west, south, north:** remain in a similar condition as they were in 1985.
2024	**The Site and surrounding properties** showed no obvious change throughout the Site since 2001.

Based on historical activities and operations, it is possible that the Radio Site, including the former Operations and Admin building, which was operational from the late 1940s to early 1970s may have had diesel backup generators, fuel storage, and likely heating oil storage. These potential components to this building are considered a potential environmental concern for the Site.

3.5 City Directories Search

Stantec conducted a search of historical city directories for the Site, and neighbouring properties located within 500 m of the Property. Directory listings dated in 1997, 2000. 2012, 2017, 2021, and 2023. Operations of potential environmental concern associated with the Site or neighboring properties were not identified.

3.6 Fire Insurance Plans

The production of FIPs ceased in 1975[1]. As the Site is situated in a rural area outside of the city of Whitehorse, no request was made for FIPs as they were only developed for urban regions; therefore, FIPs were not reviewed during this Phase I ESA.

[1] University of British Columbia. Information on BC Fire Insurance Maps. Available here: https://guides.library.ubc.ca/fireinsurancemaps

4 Site Visit

The Site was assessed by Ally McMurray, of Stantec, on February 11, 2025. The Site and readily visible and publicly accessible portions of adjoining and neighbouring properties were assessed for the presence of potential sources of environmental contamination. Stantec was not accompanied during the site visit. The Site, and surrounding areas, were covered in snow, limiting the site assessment.

Photographs of the Site, Property, and surrounding area are provided in Appendix D.

4.1 Site Activities and Features

The principal observations made during the site visit are summarized below:

- The Site is predominantly undeveloped and forested. The residential areas of the Site appear to have electrical and telephone services. Storm water is managed by infiltration and ditches, and sewage is directed to the treatment lagoons at the south of the Site. Further information about municipal services could not be confirmed.
- No floor drains, sumps, interceptors, or separators were identified on the Site.
- Multiple residences on the Site were observed to have heating oil ASTs
- No chemical or fuel storage ASTs were identified on the site visit, further, due to the snow cover, it was not feasible to assess the presence of vent or fill pipes, which could indicate the potential existence of abandoned or decommissioned USTs.
- Waste disposal and recycling are picked up by a private contractor and taken to the City of Whitehorse landfill for disposal.
- No hazardous waste generation or storage was identified to be conducted on the Site.
- No watercourses, ditches, or pits were identified on the Site. Sewage lagoons were reported to be present on the southern part of the Site; however, public access was restricted.
- No surface staining was observed during the site visit. Minor stains were observed on the snow in the central portion of the Site. A picture of the stains is presented in the photolog in Appendix E.
- The odor of decaying matter and sulfur was present to the south of the residential area.
- Waste material observed at the Site, including abandoned vehicles and RVs, boats, empty buckets, drums, tire stockpile, and wood wastes

Based on the information gathered during the site visit and from the current owner, the first sewage lagoons have been present on the southern portion of the Site since 1969. The sewage lagoons are a Schedule 2 Activity (H17 – sewage lagoons or impoundments) in the BC Contaminated Site Regulation (used for comparison in absence of a similar Yukon subscribed activities) and considered to be a potential environmental concern to the Site.

The Development Area appeared to be forested and undeveloped.

4.2 Hazardous Building Materials

4.2.1 Asbestos-Containing Materials (ACMs)

Asbestos is a naturally occurring form of fibrous silicate that was incorporated into thousands of products due to its numerous commercially viable properties (e.g., durability, flexibility, thermal/tensile strength, resistance to heat, chemical corrosion and friction, electrical non-conductivity, insulative properties etc.). Growing awareness regarding the negative health effects of exposure to asbestos led to changes in industry practices and/or legislation regarding the use of asbestos in building products and other materials. Although the use of asbestos in building materials started to decline in the mid- to late-1970s and many types of asbestos-containing materials (ACMs) were no longer in use by the 1990s, some ACMs saw continued use through December 30, 2018, in Canada, when an official ban on the import, manufacture, sale, trade or use of asbestos-containing products was implemented.

Based on the age of the site buildings (as early as the late 1940s), building products associated with interior and exterior finishes and systems may contain asbestos.

4.2.2 Polychlorinated Biphenyls (PCBs)

PCBs were imported into Canada from approximately the 1930s to the 1970s. PCBs were widely used in the following:

- Coolants and lubricants for electrical equipment such as transformers and capacitors, including capacitors that may have been used in ballasts for fluorescent light fixtures.
- Industrial materials, including sealant and caulking compounds, inks and paint additives.

PCBs were restricted in Canada in 1977 with the introduction of the *Chlorobiphenyls Regulations*, which prohibited the manufacture, processing, import and sale of PCBs for most commercial, manufacturing or processing uses immediately. The regulation also established similar prohibitions on sealed systems such as capacitors, electrical transformers and associated electrical equipment manufactured in or imported into Canada on or after July 1, 1980.

The potential for PCBs to be present in buildings is expected to decrease significantly after approximately 1977. Considering the potential that existing stocks of materials may have been distributed and used after the initial ban, along with information published by Government of Canada in relation to whether buildings may be subject to the PCB Regulations, it is reasonable to expect that the potential for PCB-containing items to be present is limited in buildings constructed after 1985.

Subsequently, the *PCB Regulations* (SOR/2008-273), which came into effect in 2008 (with amendments coming into force in 2015), implemented deadlines on equipment already in use and in storage, in order to accelerate the elimination of PCBs from the Canadian environment. Under SOR/2008-273, the following general end-of-use deadlines are of current relevance (notwithstanding extensions granted by the federal government):

- December 31, 2009:

  - Equipment containing PCBs greater than 500 parts per million (ppm), with exceptions for equipment at electrical generation sites.
  - Equipment containing PCBs between 50 and 500 ppm at “prescribed sites” such as childcare facilities, hospitals, schools, seniors care facilities, and food/water processing facilities.
- December 31, 2025:
  - Equipment containing PCBs greater than 500 ppm at electrical generation, transmission or distribution facilities.
  - Equipment containing PCBs between 50 and 500 ppm at non “prescribed sites”.
  - Light ballasts, pole-mounted electrical transformers/auxiliary electrical equipment containing PCBs greater than 50 ppm.

Based on the age of the site buildings (as early as the late 1940s), PCB-containing materials may be present on the Site, including light ballasts. Pole-mounted transformers, potential PCB-containing equipment, were identified during the site visit.

4.2.3 Lead-Based Building Materials

Lead is commonly found in buildings within materials including the following:

- Historical uses:
  - Plumbing pipes and parts such as faucets and valves (pre-1975)
  - Solder used on copper domestic pipes (1930 – 1986)
  - Mini vinyl window blinds (pre-late 1990s)
- Current common uses:
  - Caulking on bell fittings for cast iron drainage pipes
  - Electrical equipment and wiring
  - Batteries – potentially in terminal posts and lead-acid battery fluid (e.g., emergency exit signage batteries, stored vehicles, or other batteries)
  - Lead sheeting (e.g., x-ray rooms, bank safes/vaults, other secure rooms)
  - Stained glass
  - Vent and pipe flashings, typically on rooftop penetrations

Lead was also incorporated into paints and ceramic tile and pottery glazes to accelerate drying, increase durability, maintain a fresh appearance, enhance colours, and resist moisture that causes corrosion. In Canada, the *Surface Coating Materials Regulations* (SOR/2016-193) under the federal *Hazardous Products Act* indicate that surface coatings must not contain more than 90 milligrams/kilogram of lead (equivalent to 90 parts per million [ppm]), with the exceptions for the following:

- Anti-corrosive or anti-weathering coatings on interior or exterior surfaces of agricultural buildings
- Anti-corrosive or anti-weathering coatings on structures, other than buildings, having an agricultural or public purpose
- Touch-up paints
- Outdoor graphic art or art/craft/hobby paints if not used by children

Based on the age of the site buildings (as early as the late 1940s) and/or associated structures and equipment, and the observations made during this assessment, the following lead-containing materials may be present.

- Plumbing pipes and parts such as faucets and valves (pre-1975)
- Solder used on copper domestic pipes (1930 – 1986)
- Caulking on bell fittings of cast iron drainage pipes
- Electrical equipment and wiring
- Batteries – potentially in terminal posts and lead-acid battery fluid (e.g., emergency exit signage batteries, stored vehicles, or other batteries)
- Mini vinyl window blinds (pre-late 1990s)
- Vent and pipe flashings, typically on rooftop penetrations
- Stained glass
- Surface coatings such as paint and glazes

4.2.4 Urea Formaldehyde Foam Insulation (UFFI)

Urea Formaldehyde Foam Insulation (UFFI) was developed in Europe in the 1950s as an improved means of insulating difficult-to-reach cavities in buildings with wood-framed walls. During the 1970s, when concerns about energy efficiency led to efforts to improve insulation in Canada, UFFI was widely used for insulating and retrofitting industrial, commercial, and older residential buildings. UFFI is more commonly found in homes built or retrofitted in the 1970s, often in basements, wall cavities, crawl spaces, and attics. Most installations occurred between 1977 and its ban in Canada in December 1980.

Based on the age of the site buildings (trailer homes in the 1970s), it is possible that UFFI may be on the Site.

4.2.5 Ozone-Depleting Substances (ODSs)

Ozone-depleting substances (ODSs) are often described by the general term “halocarbons”, and generally include the following:

- Halons, which have been mainly used in fire extinguishers and fire suppressions systems.

- Chlorofluorocarbons (CFCs – e.g., R-12, R112), carbon tetrachloride, and methyl chloroform, which have been used in many applications including refrigeration, air conditioning, cleaning of electronics components, and as solvents.
- Hydrochlorofluorocarbons (HCFCs – e.g., R-22, R-123), which were developed for use as transitional chemicals to replace CFCs.

The *Montreal Protocol on Substances that Deplete the Ozone Layer*, which went into effect on January 1, 1989, regulated the production and consumption of ODSs. Under the initial agreement and subsequent amendments, and with limited exceptions, target dates including, but not limited to the following were established in Canada:

- Halons – phased out by 1994
- CFCs, carbon tetrachloride, and methyl chloroform – phased out by 1996
- HCFCs – phased out by 2030

Although ODS-containing chemicals for cooling, refrigeration, or fire suppression equipment were not observed on-site during the visit as structures were covered with snow and the interiors of residential buildings were not assessed, the possibility of ODS-containing equipment should not be dismissed.

4.3 Special Attention Items

4.3.1 Radon Gas

Radon is a radioactive gas associated with uranium rich black shale and/or granite bedrock. Radon emits alpha particles and produces several solid radioactive products called radon daughters. Harmful levels of radon and radon daughters can accumulate in confined air spaces, such as basements and crawl spaces.

City of Whitehorse GIS maps household radon test restuls from 2006-2018. For the Lobird neighbourhood, the average household radon level was 54 Bq/m^3 (becquerels per cubic meter). below the Government of Canada guidelines of 200 Bq/m^3.

As the majority of the Site is undeveloped and based on the absence of basement or crawl space associated with the Site buildings, risks associated with radon accumulation at the Site is expected to be low; however, further testing would be required to confirm this.

4.3.2 Microbial Contamination (Mould)

Conditions conducive to mould growth and other microbial contamination in indoor environments can be created when moisture issues occur. Moisture intrusion can impact building materials, and moist building materials can provide suitable conditions for mould growth. Moisture intrusion may be the result of failure or deficiencies in building envelope components or mechanical systems, design or operational issues leading to condensation, or as a result of environmental conditions such as floods. If left unaddressed, indoor mould growth can negatively impact indoor air quality. Although there is no practical way to eliminate all mould and mould spores in the indoor environment, significant mould growth can typically be

mitigated by controlling moisture. Where mould is identified, it may require appropriately trained workers to remove.

Stantec did not enter any private residences to assess the presence of absence of mould.

4.3.3 Electromagnetic Frequencies (EMF)

Electrical currents induce electromagnetic fields. No scientific data supports definitive answers to questions about the existence or non-existence of health risks related to electromagnetic fields.

No high-voltage transmission lines or electrical substations, which could generate significant electromagnetic fields, were observed to be present on or adjacent to the Site.

4.3.4 Noise and Vibration

The effects of noise and vibration on human health vary according to the susceptibility of the individual exposed, the nature of the noise/vibration, and whether exposure occurs in the working environment or in the home.

No major or persistent sources of noise and vibration were identified on the Site at the time of the site visit.

5 Neighbouring Property Information

Neighbouring properties, from publicly accessible areas, were observed for current activities. Current land uses of neighbouring properties are identified on Figure 2 in Appendix A. A summary of operations and land uses on the neighbouring properties is provided in Table 5-1.

Table 5-1 Neighbouring Property Information

Direction from the Site	Current Activity and Land Use
North	Forested Land
South	Forested Land
West	Forested Land
East	Hamilton Boulevard, McLean Lake Road

No current or historic tenant, activities, or operations were identified on neighbouring properties that would be considered operation of potential environmental concern to the Site.

6 Conclusions

The Phase I ESA has revealed evidence of APECs associated with the Site. Based on the information gathered and observations noted, three on-site APECs were identified and are listed in Table 6-1, along with their associated PCOCs, and discussed below.

Table 6-1 APECs and PCOCs

APEC	PCOC
APEC 1: Historical On-Site Spill at 17 Lobird Court in 2001	Light Extractable Petroleum Hydrocarbon (LEPH), Heavy Extractable Petroleum Hydrocarbon (HEPH), Polycyclic Aromatic Hydrocarbon (PAH), Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Volatile Petroleum Hydrocarbon (VPH), Volatile Organic Component (VOC)
APEC 2: Historical Radio Site, Operation from late 1940s to early 1970s	LEPH, HEPH, PAH, BTEX, VPH, VOC
APEC 3: On-site Sewage Lagoon	Ammonia, Nitrate, heavy metals, PAH
APEC 4: Reported Spill adjacent to the Site	LEPH, HEPH, PAH, BTEX, VPH, VOC

APEC 1 – On-Site Spill at 17 Lobird Court (Latitude 60.68411, Longitude -135.07675)

In May 2001, approximately 455 liters of heating oil were spilled from an overturned tank, with the oil observed soaking into the ground. No reports were submitted regarding the follow-up or resolution of the incident.

APEC 2 – Historical Radio Site, Operation from late 1940s to early 1970s

Based on aerial photos and current or historical activities and operations, it is possible that the Radio Site, including the former Operations and Admin building, which was operational from the late 1940s to early 1970s may have had diesel backup generators, fuel storage, and likely heating oil storage. These components could be considered operations with potential environmental concerns for the Site.

APEC 3 – On-site Sewage Lagoon

Based on the information gathered during the site visit, the sewage lagoon has been present on the southern portion of the Site. The sewage lagoon is a Schedule 2 Activity (waste disposal and recycling operations and activities) and considered to be a potential environmental concern to the Site.

APEC 4 – Off-site Reported Spill

A spill, report was provided in the Contaminated Sites Inventory (CSI) for Lobird Court between Hamilton Boulevard and McLean Lake Road in June 2003, approximately 25 m east of the Site. This listing is aligned with the off-site listing identified on the Yukon Contaminated Sites Information Map. The listing indicates that an unknown volume of oil and diesel reportedly leaked from a semi truck on Lobird Road. An

investigation and further study were planned but no results were submitted. Given the proximity to the Site, the reported spill is considered a potential environmental concern. The Development Area was not identified to have any APECs associated with it.

7 Recommendations

The Phase I ESA did not identify APECs within the Development Area. No further investigation is recommended for the Development Area.

Based on the findings of the Phase I ESA, outside of the Development Area, but within the Site, three APECs associated with historical and current activities were identified. Stantec recommends conducting a Phase II ESA to confirm the presence or absence of contamination related to APECs. This assessment should also evaluate the extent of the on-site spill (APEC 1) and determine the type, volume, and potential spread of the spilled material. Soil, water, and air samples should be collected to identify contamination levels and assess potential risks to the surrounding environment.

Based on the age of the site buildings (as early as the late 1940s), a Hazardous Building Material assessment should be conducted prior to any future physical alteration or renovation of on-site materials.

8 References

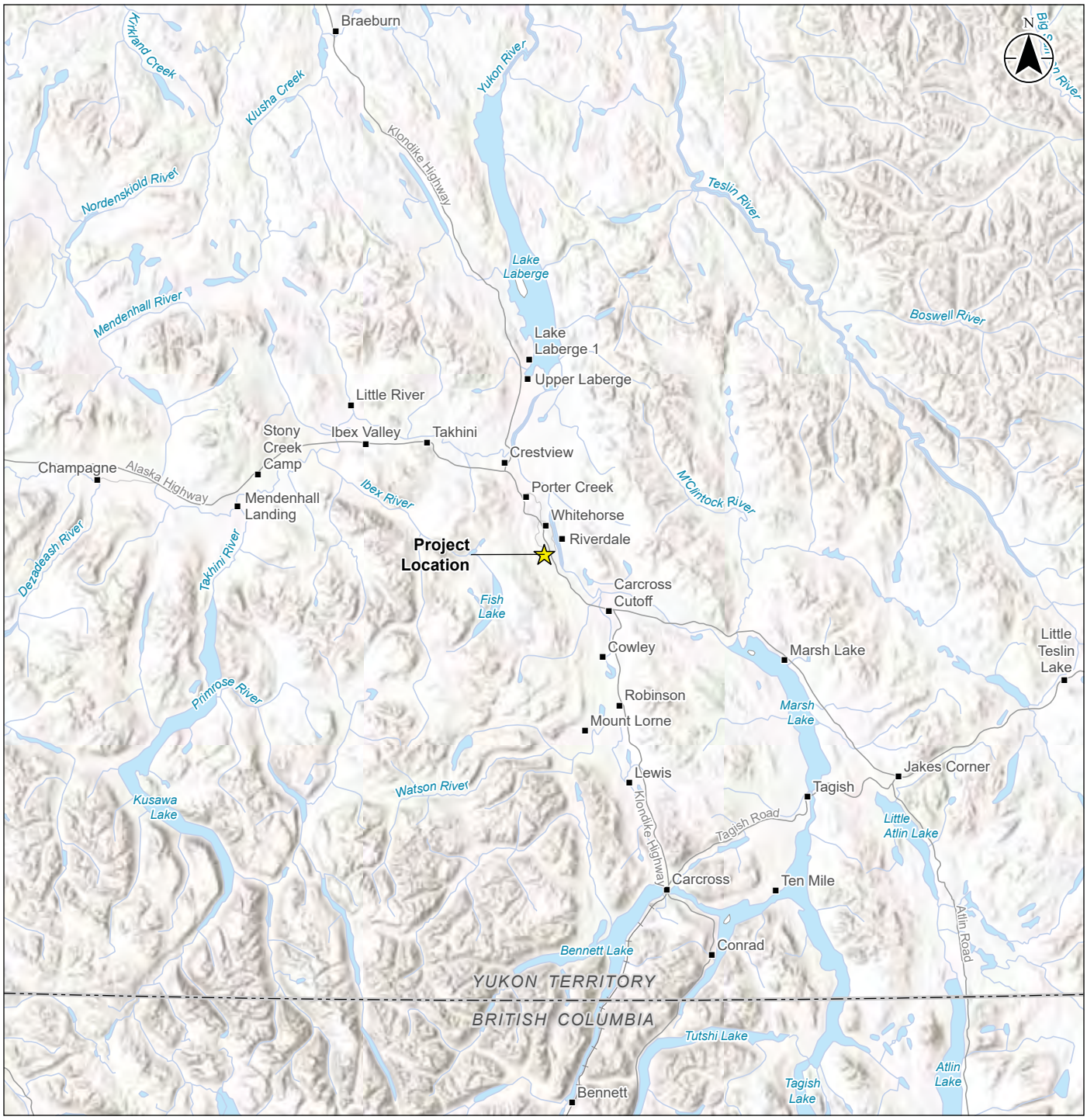
The references are listed in Table 8-1.

Table 8-1 Information Sources – Phase I ESA

Information	Source
Aerial Photographs	1952, 1961, 1969, 1971, 1976, 1981, 1985, 1992, 2001 – Government of Yukon Maps 2024 - Google Earth
Fire Insurance Plans	None Requested
City Directories	City directory, Order Number 25020700829, February 18, 2025
Previous Environmental Reports	None Provided
Topography	https://gisext.whitehorse.ca/Html5Viewer/index.html?viewer=PlanningViewer
Environmental Risk Information	ERIS Report, Order Number 25020700829, February 11, 2025
Contaminated Sites Registry	Yukon Contaminated Sites Information Map: https://yukon.maps.arcgis.com/apps/webappviewer/index.html?id=d331e96802054e6aabc8f0d8ed61311a
Geological and Soil Maps	Bedrock Geology: ArcGIS - Bedrock geology map https://ygsftp.gov.yk.ca/publications/geoscience_map/2005/gm2005_7.pdf
Land Title & Legal Plan	Government of Yukon Land Titles Office https://clss.nrcan-rncan.gc.ca/clss/plan/detail?id=89989 CLSR YT%20
Water Well Records	Yukon Water Well and Data Catalogue: http://yukon.maps.arcgis.com/apps/webappviewer/index.html?id=2365a4c0b8744f34be7f1451a38493d2
Radon Gas	https://www.arcgis.com/apps/mapviewer/index.html?webmap=73d5d04e9b7243d98166e5e7929b1218
Climate Information	https://climate.weather.gc.ca/climate_normals/results_1991_2020_e.html?searchType=stnName_1991&txtStationName_1991=Whitehorse&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=440000000&dispBack=1

Appendices

Appendix A Site Figures



Notes:
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data Sources: Government of Yukon
3. Imagery: Google World Hillshade: Esri, USGS

- Populated Place
- Provincial Boundary
- Road
- Local Street
- Railway
- Watercourse
- Waterbody
- Project Location

0 10 20 30 40 50 km

1:1,000,000 (at original document size of 11x17)

Stantec

Project Location:
Lobird Court
Whitehorse, Yukon

Project Number: 115825012
Requested by AROSHANI 20250219
Prepared by RCOATTA 20250219
Checked by AROSHANI 20250219

Client/Project/Report
Lobird Living Corp.
Lobird Country Residential Development
Phase I Environmental Site Assessment

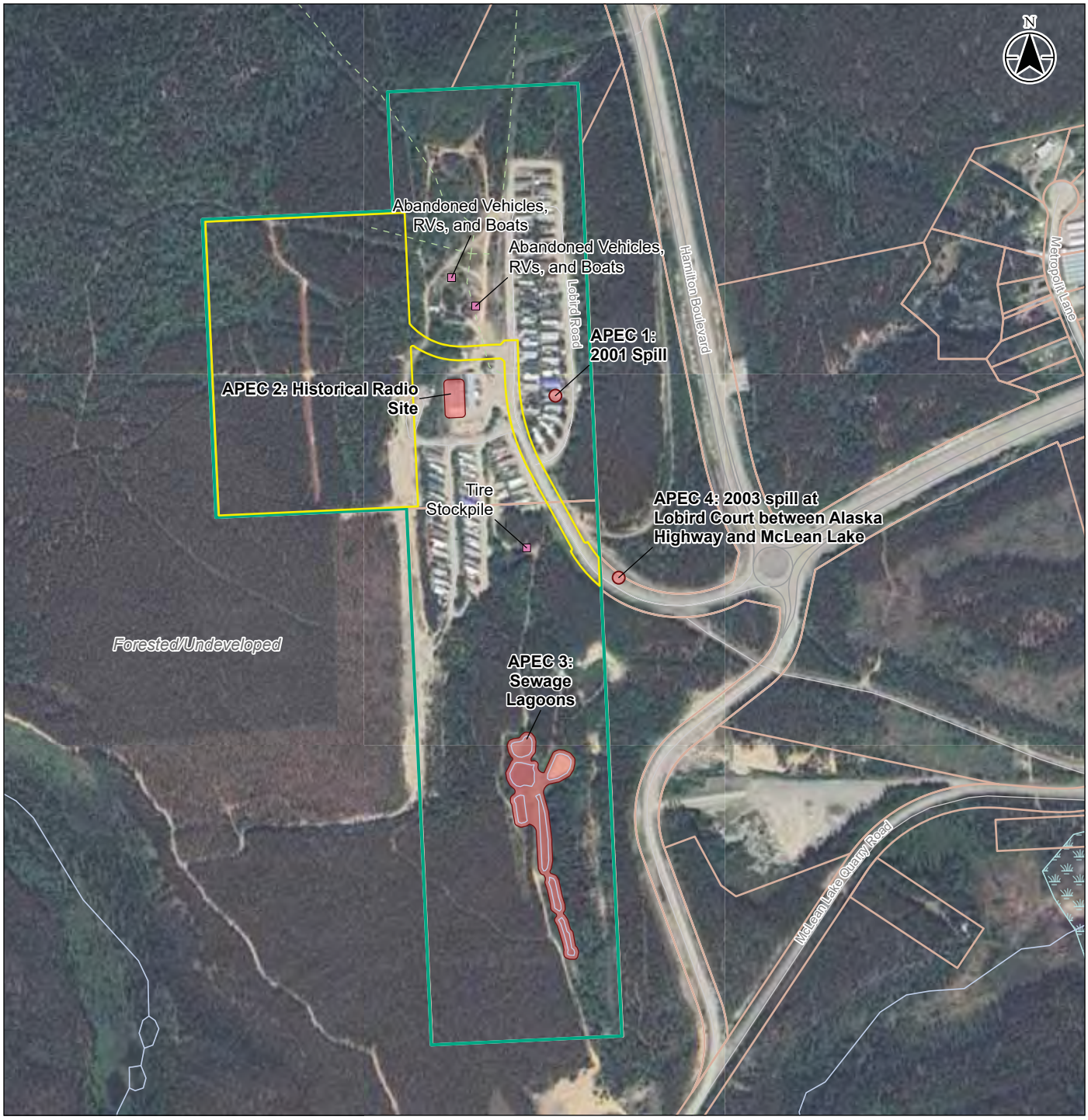
Figure No. **1**

Page No. **1 of 1**

Title
Location Map

\\CA0183-PBAGF01\Workgroup\1232\projects\115825012\figures\reports\phase_1_esa\phase1.aprx Layout: fig_01_location_map Map: Main Revised: 2025-04-01 Byrcoatta

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data.
The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.



Notes:
1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data Sources: Government of Yukon
3. Imagery: Google Satellite: © OpenStreetMap (and) contributors, CC-BY-SA
4. APEC: Area of Potential Environmental Concern

- Road
- Local Street
- Trail
- Watercourse
- Waterbody
- Wetland
- Yukon Land Parcel
- Site Feature
- APEC[4] Location
- APEC[4]
- Development Area
- Site Boundary

0 50 100 150 200 250 m
1:7,500 (at original document size of 11x17)

Stantec

Project Location:
Lobird Court
Whitehorse, Yukon

Project Number: 115825012
Requested by AROSHANI 20250219
Prepared by RCOATTA 20250219
Checked by AROSHANI 20250219

Client/Project/Report
Lobird Living Corp.
Lobird Country Residential Development
Phase I Environmental Site Assessment

Figure No. 2
Page No. 1 of 1

Title
Site Map

\\CA0183-PBAGF01\Workgroup\1232\projects\115825012\figures\reports\phase_1_esa\phase1.aprx Layout: fig_02_site_map Map: Main Revised: 2025-04-03 Bytcoatta

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data.
The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Appendix B Assessor Qualifications

Matthew Redmond P.Eng.

Senior Associate, Environmental Services

PROFILE

Matthew Redmond has been working on Contaminated Sites Investigations since 2003. He has completed Phase I Environmental Site Assessments (ESAs) and Stage 1 Preliminary Site Investigations (PSIs) for commercial sites throughout British Columbia. He is a Senior Environmental Engineer for Stantec's British Columbia Environmental Site Investigation and Remediation Group, and has completed environmental assessments for financial institutions, property developers, property managers and government facilities across British Columbia. Mr. Redmond has extensive experience in managing, directing and composing reports for Phase I ESAs, Phase II ESAs, Stage 1 and 2 PSIs, Detailed Site Investigations, Site Remediation, Hazardous Materials Surveys, and Mold Investigations.

EDUCATION

B.A.Sc. – University of British Columbia, 1999
Vancouver, BC
Bio-Resource Engineering

COMPETENCY

Site Visit
Report Writer
Senior Reviewer

Matthew Deane B.Sc., P. Ag.

Environmental Scientist

PROFILE

Matthew Deane has been conducting Phase I Environmental Site Assessments (ESA) since 2011. Matt has researched and prepared more than 50 Phase I ESA reports for commercial, industrial, and undeveloped properties in British Columbia, Alberta, and Yukon Territory. He is a Senior Project Manager and Team Lead for Stantec's Burnaby Site Investigation and Remediation Group, and has completed environmental assessments for financial institutions, property developers, property managers, and government facilities across British Columbia. Mr. Deane also has experience in managing, directing, and composing reports for Phase II ESAs, Stage 1 and 2 Preliminary Site Investigations, Detailed Site Investigations and Site Remediation.

EDUCATION

B.Sc. – University of British Columbia, 2004
Vancouver, BC
Biology

COMPETENCY

Site Visit
Report Writer
Project Manager
Report Reviewer

An R han Ph.D. E.I.

Environmental Engineer in raining

PROFILE

Anis oshani has our years o e erience as Environmental Engineer in raining and has e erience conducting Phase ESAs. She has een involved in com leting Phase I ESAs re ort or residential sites throughout British Colum ia. She er ormed ha ardous material surveys as estos, mold, lead and remediation ins ection, recorded ield data and re ared and assessed Designated Su stance e orts DS to ensure survey com letion, sam ling, and remediation activities ere ollo ing rovincial regulations . eg. at construction sites.

EDUCATION

Ph.D. niversity o tta a,

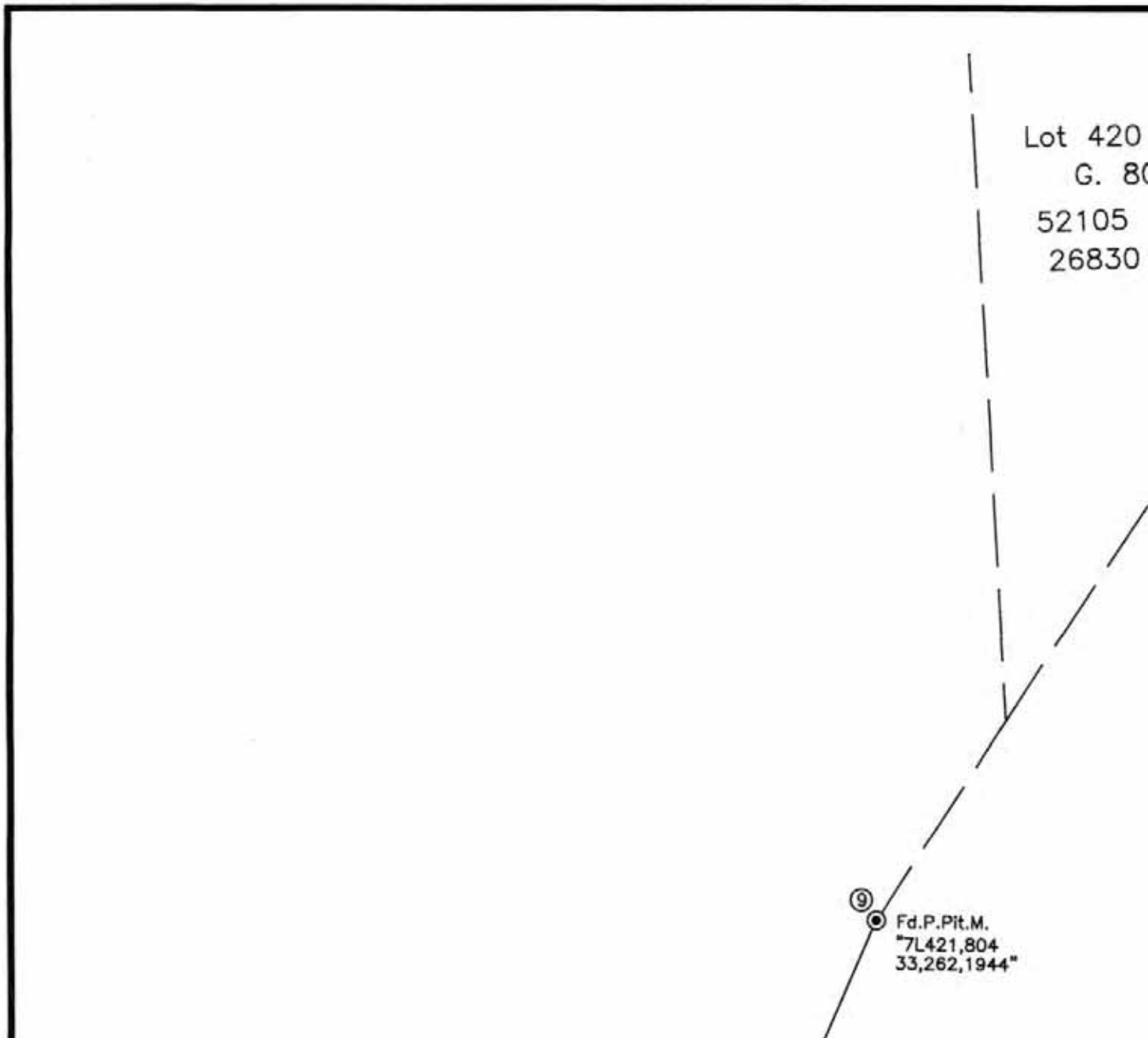
tta a,

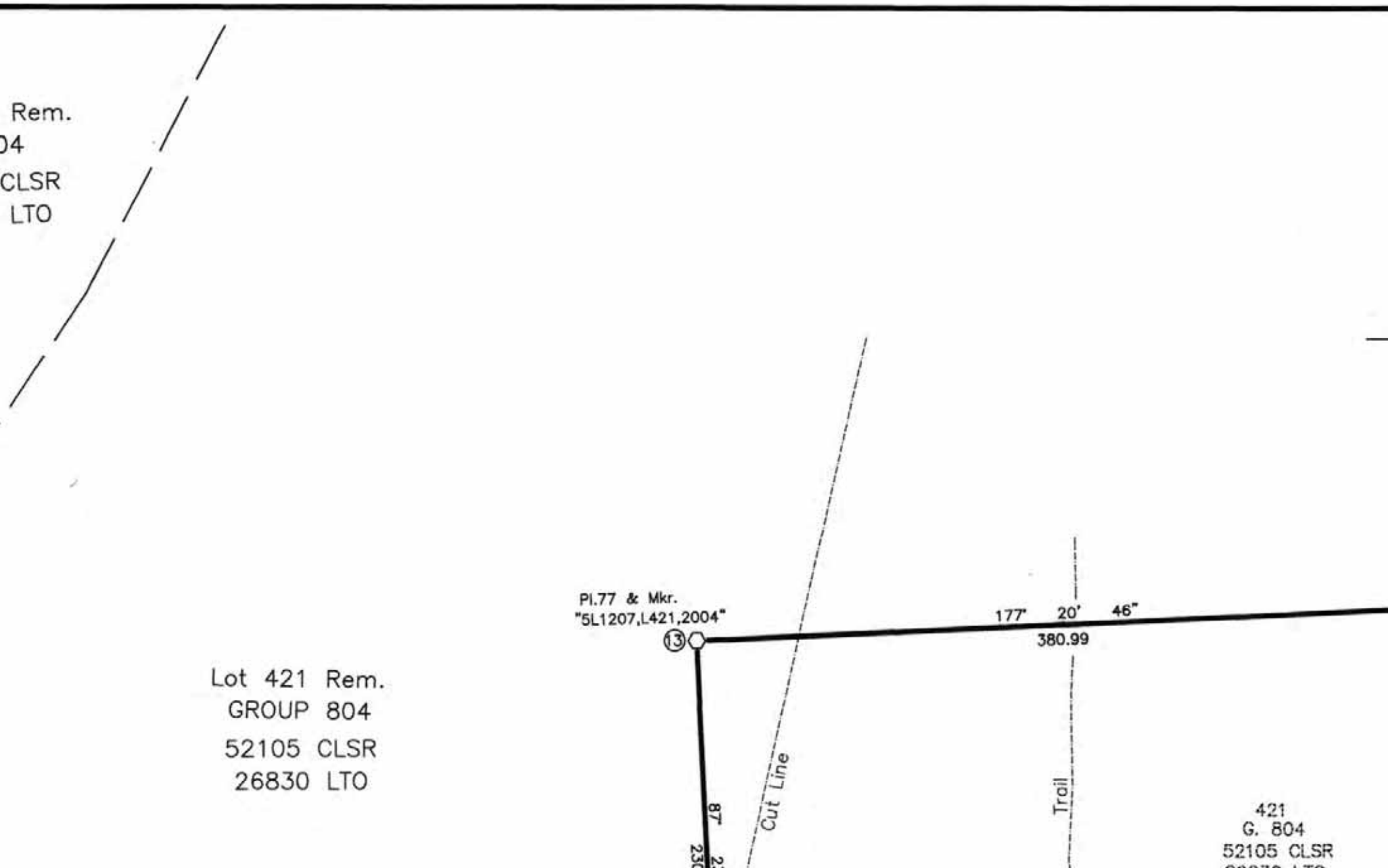
Environmental Engineering

COMPETENCY

e ort Writing

Appendix C Site Records


Lot 420
G. 80
52105
26830
9
Fd.P.Pit.M.
"7L421,804
33,262,1944"


Rem.
04
CLSR
LTO
Pl.77 & Mkr.
"5L1207,L421,2004"
13
177°
20'
46"
380.99
Lot 421 Rem.
GROUP 804
52105 CLSR
26830 LTO
87°
Cut Line
Trail
421
G. 804
52105 CLSR

CANAD

Da

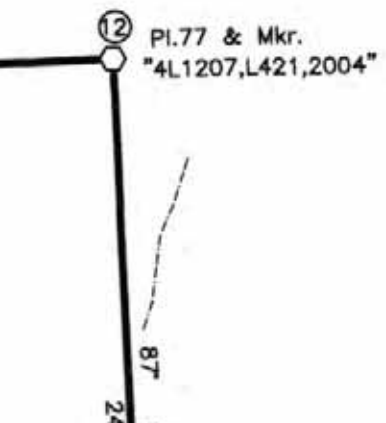
PLAN A
OF SU

LOTS
QUAD

COMPRISI
PLAN 56
PART OF
AND PAR
AND VAC

WHITEHO

CITY O



Lot 421 Rem.
GROUP 804
52105 CLSR

A LANDS SURVEYS RECORDS

89989

ate: April 12 ,2005

Registered this 18 day of APRIL, 2005 at 0922

under LTO No. 2005-0035

D Doll Registrar

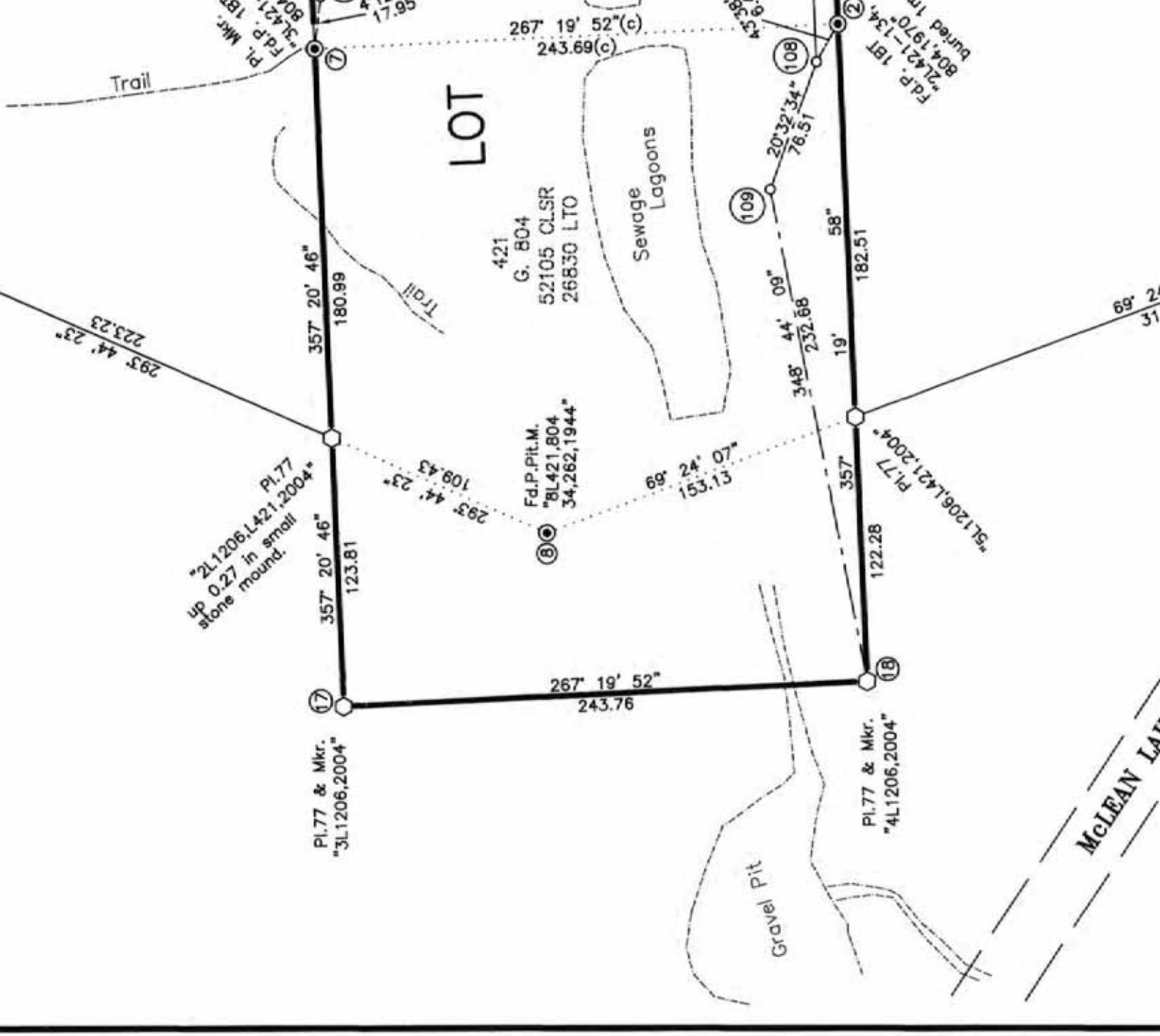
AND FIELD NOTES
RVEY OF

1206 AND 1207
105 D/11

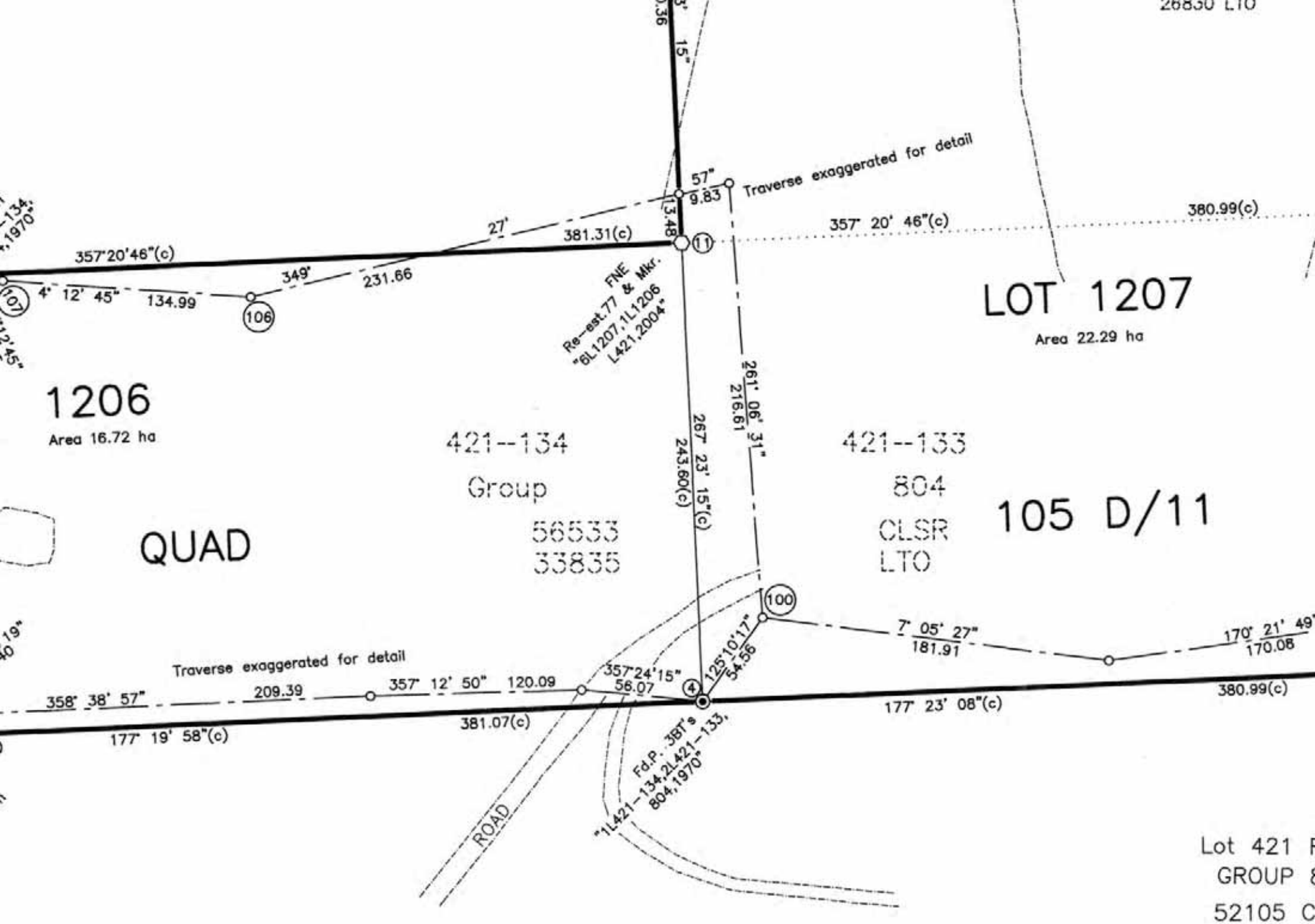
ING LOTS 421–133 AND 421–134, GROUP 804,
533 CLSR, 33835 LTO,
LOT 421–137, GROUP 804, PLAN 57388 CLSR, 39603 LTO,
T OF LOT 421 REM., GROUP 804, PLAN 52105 CLSR, 26830 LTO,
ANT CROWN LAND

RSE COORDINATED SURVEY AREA

F WHITEHORSE

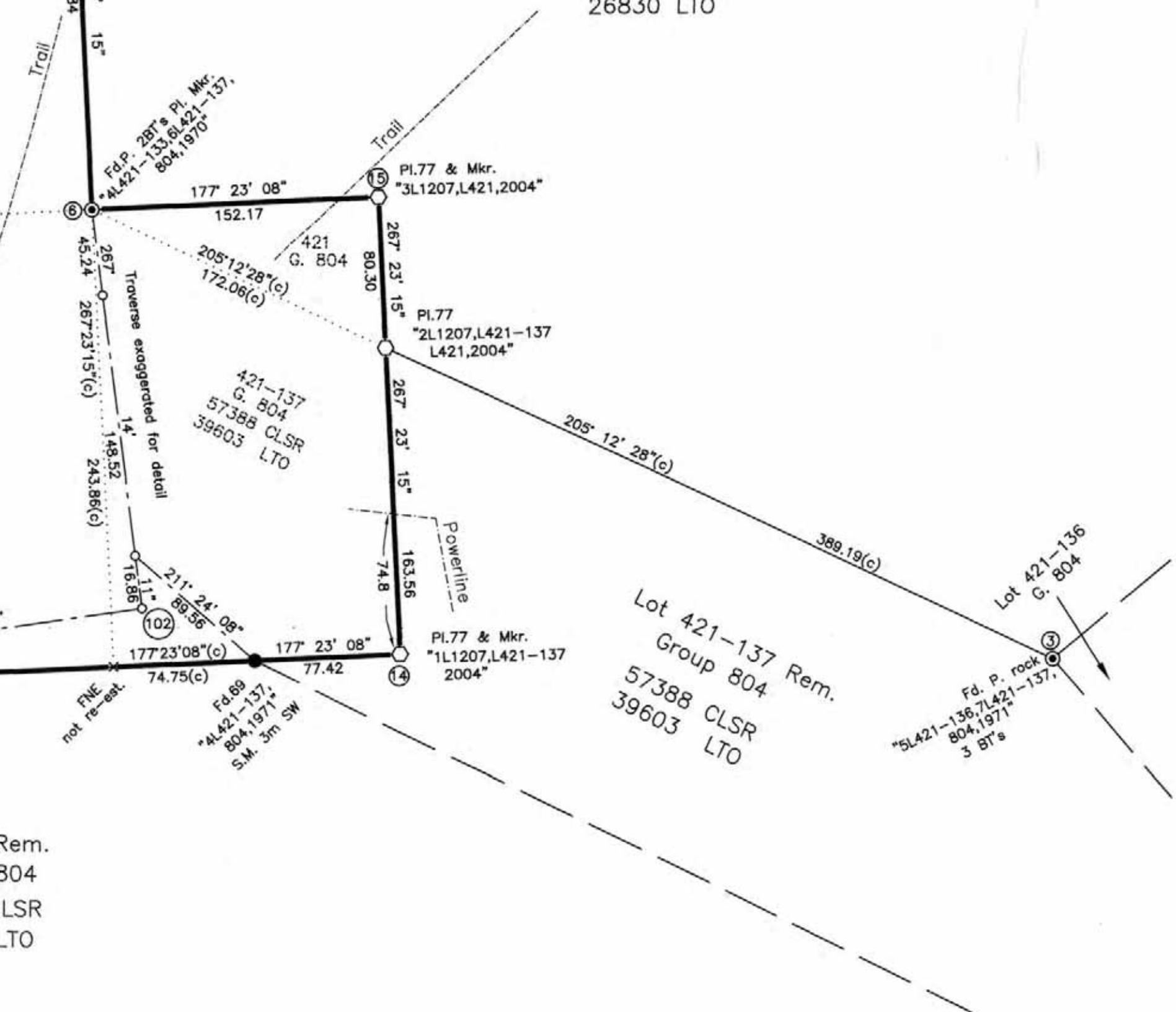


close window



UTM COORDINATES NAD 83

STATION	NORTHING	EASTING	
8725	6729256.13	496242.39	CCM 87G25B



YUKON

SCALE

50 25

THIS SUR
BY GABRI

LEGEND:

Bearings a
to the cen

UTM coordi
To comput
projection

Distances
All hanging

CLS stand
CLS '77 p
CLS '77 p
CLS '69 p
Traverse lin

Lands deal

CERTIFIE

N TERRITORY

1 : 2500

50 100 150 200 250 metres

VEY WAS EXECUTED DURING THE PERIOD AUGUST 30 TO OCTOBER 4, 2004
EL. AUCOIN, CLS.

re UTM grid derived from differential GPS baselines and are referred
tral meridian of UTM Zone 8, (135° west Long.)

nates are NAD83 derived from ties to CCM 87G25B.
e UTM coordinates, distances have been converted to sea level and to the
plane by applying a combined conversion factor of 0.999475.

shown are horizontal at general ground level and are expressed in metres.
lines were check-chained.

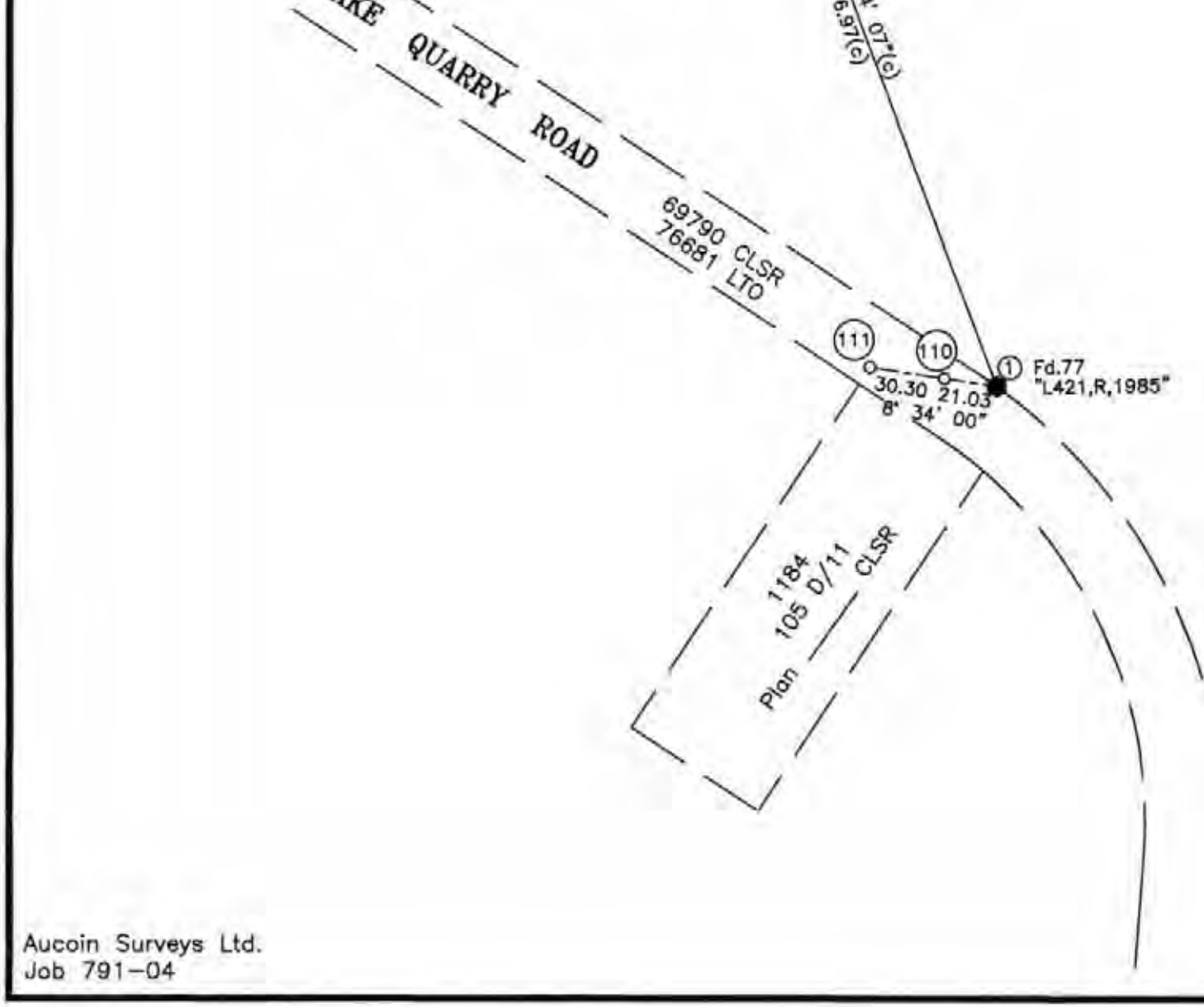
rd posts found shown thus
osts placed shown thus
osts found shown thus
osts found shown thus
es and stations shown thus

t with by this plan bounded thus

D CORRECT: Date October 24, 2004

Association of Canada Lands Surveyors
Gabriel D. Aucoin
Commission No.955

C7256 8888



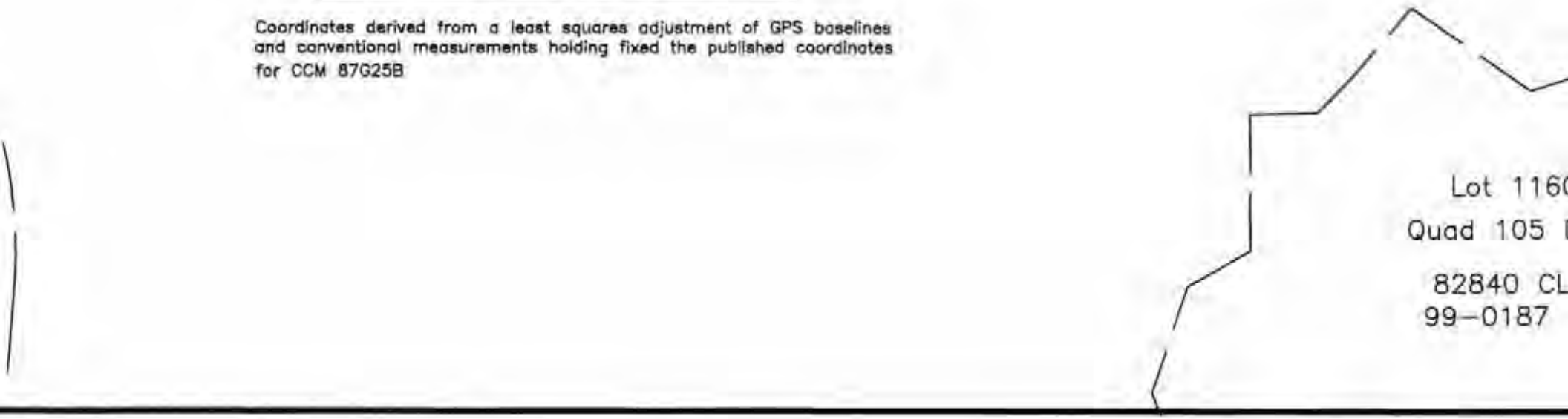
Aucoin Surveys Ltd.
Job 791-04

1	6727020.99	496183.51	
2	6727091.76	495878.47	
3	6728349.03	495838.80	
4	6727472.22	495860.74	
6	6727841.50	495599.89	
7	6727080.42	495635.17	
8	6726855.68	495743.67	
9	6726989.54	495439.31	
11	6727461.12	495617.52	
12	6727830.39	495356.43	
13	6727450.01	495374.06	
14	6728004.54	495836.44	
15	6727993.43	495592.95	
17	6726776.10	495649.28	
18	6726787.45	495892.64	
100	6727503.63	495816.17	
102	6727851.65	495810.16	
106	6727232.87	495646.40	
107	6727098.31	495636.49	
108	6727087.12	495874.05	
109	6727015.52	495847.22	
110	6727000.21	496180.38	
111	6726970.26	496175.86	

Coordinates derived from a least squares adjustment of GPS baselines and conventional measurements holding fixed the published coordinates for CCM 87G25B

GPS BASELINES

FROM	TO	BEARING	DISTANCE
3	8725	23° 59' 06"	993.35
8	8725	11° 44' 13"	2452.99
9	8725	19° 30' 35"	2405.91
100	8725	13° 40' 09"	1804.53
102	8725	17° 06' 21"	1470.25
106	8725	16° 24' 48"	2110.31
107	8725	15° 41' 03"	2242.44
106	107	184° 12' 45"	134.99
111	8725	1° 40' 01"	2288.02
111	110	8° 34' 00"	30.30
109	8725	10° 00' 08"	2276.37
109	108	20° 32' 34"	76.51



OWNER: Lots 421–133 and 421–134, Group 804
Certificate of Title 93Y1183

WHITEHORSE SAVINGS LTD.

Canada Lands Surveyor

APPROVED

Commissioner of the Yukon Territory — Date: April 12/05

Department of Natural Resources
Re: Section 29, Canada Lands Surveys Act

Confirmed insofar as Crown Canada Lands are affected:

Brian Thompson, Head, Cadastral Services
Yukon Territory, Legal Surveys Division — Date: April 12/05

File: SM8454-105D/11
Item: DM-04 YT

Examined: J.S. Date: Oct 7/04

Reviewed: J.S. Date: Apr. 12/05

DATABASE REPORT

Project Property:	*115825012* *n/a* *Whitehorse YT*
Project No:	
Report Type:	*Quote - Custom-Build Your Own Report*
Order No:	*25020700829*
Requested by:	*Stantec Consulting Ltd. - Canada*
Date Completed:	*February 11, 2025*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Table of Contents

Table of Contents....2
Executive Summary....3
Executive Summary: Report Summary....4
Executive Summary: Site Report Summary - Project Property....6
Executive Summary: Site Report Summary - Surrounding Properties....7
Executive Summary: Summary By Data Source....8
Map....9
Aerial....10
Topographic Map....11
Detail Report....12
Unplottable Summary....13
Unplottable Report....14
Appendix: Database Descriptions....16
Definitions....21

Notice: IMPORTANT LIMITATIONS and YOUR LIABILITY

Reliance on information in Report: This report DOES NOT replace a full Phase I Environmental Site Assessment but is solely intended to be used as a database review of environmental records.

License for use of information in Report: No page of this report can be used without this cover page, this notice and the project property identifier. The information in Report(s) may not be modified or re-sold.

Your Liability for misuse: Using this Service and/or its reports in a manner contrary to this Notice or your agreement will be in breach of copyright and contract and ERIS may obtain damages for such mis-use, including damages caused to third parties, and gives ERIS the right to terminate your account, rescind your license to any previous reports and to bar you from future use of the Service.

No warranty of Accuracy or Liability for ERIS: The information contained in this report has been produced by ERIS Information Limited Partnership ("ERIS") using various sources of information, including information provided by Federal and Provincial government departments. The report applies only to the address and up to the date specified on the cover of this report, and any alterations or deviation from this description will require a new report. This report and the data contained herein does not purport to be and does not constitute a guarantee of the accuracy of the information contained herein and does not constitute a legal opinion nor medical advice. Although ERIS has endeavored to present you with information that is accurate, ERIS disclaims, any and all liability for any errors, omissions, or inaccuracies in such information and data, whether attributable to inadvertence, negligence or otherwise, and for any consequences arising therefrom. Liability on the part of ERIS is limited to the monetary value paid for this report.

Trademark and Copyright: You may not use the ERIS trademarks or attribute any work to ERIS other than as outlined above. This Service and Report (s) are protected by copyright owned by ERIS Information Limited Partnership. Copyright in data used in the Service or Report(s) (the "Data") is owned by ERIS or its licensors. The Service, Report(s) and Data may not be copied or reproduced in whole or in any substantial part without prior written consent of ERIS.

Executive Summary

Property Information:

Project Property:		*115825012* *n/a Whitehorse YT*
Project No:		
Coordinates:		
	Latitude:	*60.6841963*
	Longitude:	*-135.0785382*
	UTM Northing:	*6,727,615.10*
	UTM Easting:	*495,710.09*
	UTM Zone:	*8V*
Elevation:		*2,641 FT* *805.00 M*

Order Information:

Order No:	*25020700829*
Date Requested:	*February 7, 2025*
Requested by:	*Stantec Consulting Ltd. - Canada*
Report Type:	*Quote - Custom-Build Your Own Report*

Historical/Products:

ERIS Xplorer	*ERIS Xplorer*

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Within 0.50 km	Total
AIR	***Air Emission Permits***	*Y*	*0*	*0*	*0*
AUWR	***Automobile Wrecking & Supplies***	*Y*	*0*	*0*	*0*
CDRY	***Dry Cleaning Facilities***	*Y*	*0*	*0*	*0*
CHM	***Chemical Register***	*Y*	*0*	*0*	*0*
CNG	***Compressed Natural Gas Stations***	*Y*	*0*	*0*	*0*
CS	***Contaminated Site Inventory***	*Y*	*0*	*1*	*1*
DMP	***Designated Material Permits***	*Y*	*0*	*0*	*0*
EHS	***ERIS Historical Searches***	*Y*	*0*	*0*	*0*
EIIS	***Environmental Issues Inventory System***	*Y*	*0*	*0*	*0*
FCS	***Contaminated Sites on Federal Land***	*Y*	*0*	*0*	*0*
FRST	***Federal Identification Registry for Storage Tank Systems (FIRSTS)***	*Y*	*0*	*0*	*0*
FST	***Fuel Storage Tanks***	*Y*	*0*	*0*	*0*
GEN	***Waste Generators***	*Y*	*0*	*0*	*0*
GHG	***Greenhouse Gas Emissions from Large Facilities***	*Y*	*0*	*0*	*0*
HIS	***Historic Sites Inventory***	*Y*	*0*	*0*	*0*
IAFT	***Indian & Northern Affairs Fuel Tanks***	*Y*	*0*	*0*	*0*
LTF	***Land Treatment Facilities***	*Y*	*0*	*0*	*0*
MINE	***Canadian Mine Locations***	*Y*	*0*	*0*	*0*
MNR	***Mineral Occurrences***	*Y*	*0*	*0*	*0*
NATE	***National Analysis of Trends in Emergencies System (NATES)***	*Y*	*0*	*0*	*0*
NDWD	***National Defence & Canadian Forces Waste Disposal Sites***	*Y*	*0*	*0*	*0*
NEBI	***National Energy Board Pipeline Incidents***	*Y*	*0*	*0*	*0*
NEBT	***National Energy Board Wells***	*Y*	*0*	*0*	*0*
NEES	***National Environmental Emergencies System (NEES)***	*Y*	*0*	*0*	*0*
NPCB	***National PCB Inventory***	*Y*	*0*	*0*	*0*
NPR2	***National Pollutant Release Inventory***	*Y*	*0*	*0*	*0*
NPRI	***National Pollutant Release Inventory - Historic***	*Y*	*0*	*0*	*0*
ODS	***Ozone Depleting Substances & Other Halocarbons***	*Y*	*0*	*0*	*0*
OGWE	***Oil and Gas Wells***	*Y*	*0*	*0*	*0*
PCFT	***Parks Canada Fuel Storage Tanks***	*Y*	*0*	*0*	*0*
PES	***Pesticide Register***	*Y*	*0*	*0*	*0*
PFCH	***NPRI Reporters - PFAS Substances***	*Y*	*0*	*0*	*0*
PFHA	***Potential PFAS Handlers from NPRI***	*Y*	*0*	*0*	*0*
REC	***Waste Receivers***	*Y*	*0*	*0*	*0*
REL	***Relocation Permits***	*Y*	*0*	*0*	*0*
RST	***Retail Fuel Storage Tanks***	*Y*	*0*	*0*	*0*

Database	Name	Searched	Project Property	Within 0.50 km	Total
SCT	***Scott's Manufacturing Directory***	*Y*	*0*	*0*	*0*
SPL	***Spills***	*Y*	*0*	*0*	*0*
SWP	***Special Waste Permits***	*Y*	*0*	*0*	*0*
WDS	***Waste Disposal Sites***	*Y*	*0*	*0*	*0*
YOGW	***Yukon Oil and Gas Wells***	*Y*	*0*	*0*	*0*
		Total:	*0*	*1*	*1*

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number

No records found in the selected databases for the project property.

Executive Summary: Site Report Summary - Surrounding Properties

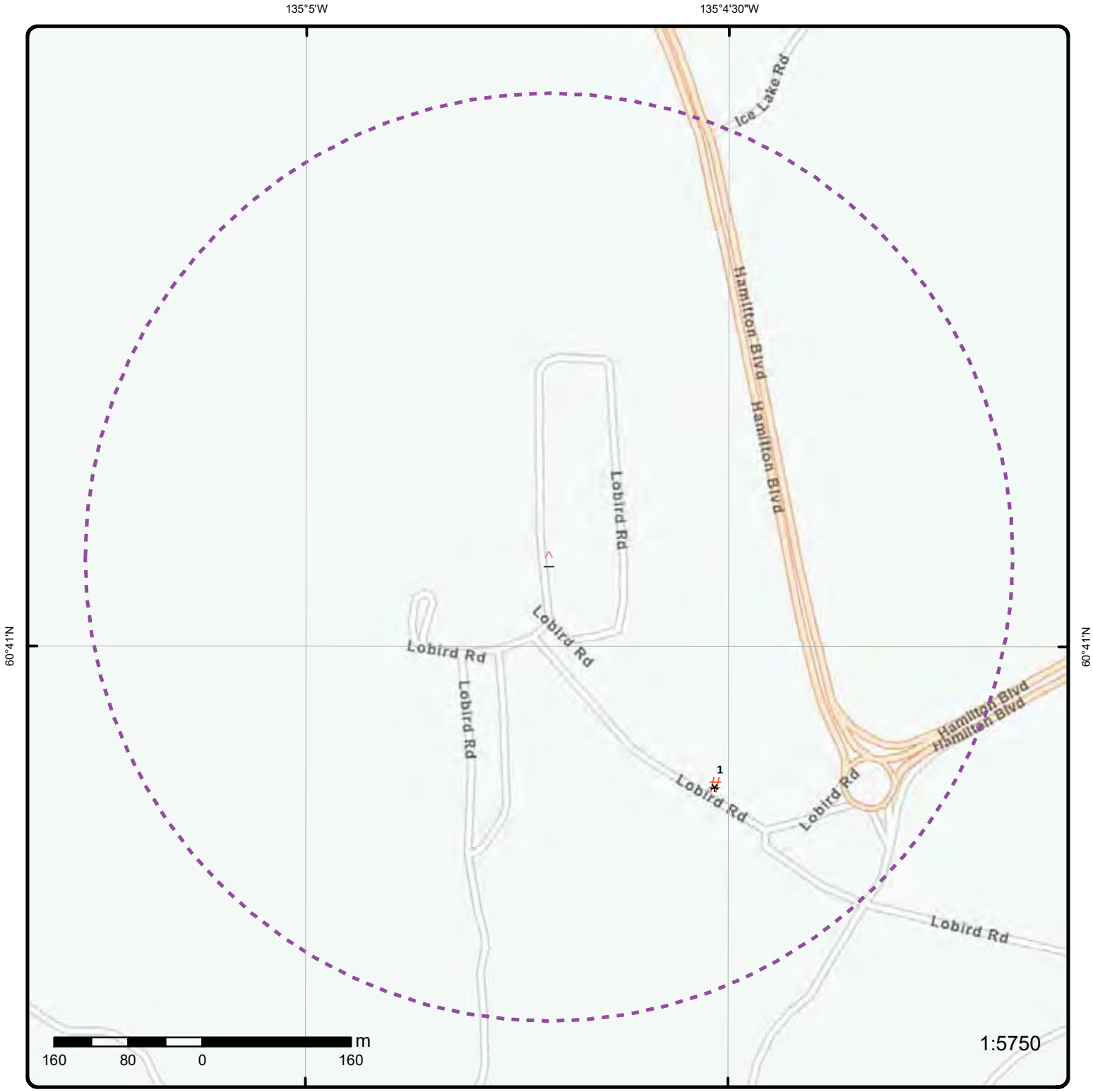
Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
1	CS	Lobird Road between Alaska Highway and McLean Lake	Whitehorse YT	SE/302.3	-11.39	12

Executive Summary: Summary By Data Source

CS - Contaminated Site Inventory

A search of the CS database, dated 1998-Feb 2024 has found that there are 1 CS site(s) within approximately 0.50 kilometers of the project property.

Lower Elevation	Address	Direction	Distance (m)	Map Key
Lobird Road between Alaska Highway and McLean Lake	Whitehorse YT	SE	302.28	1



Map: 0.5 Kilometer Radius

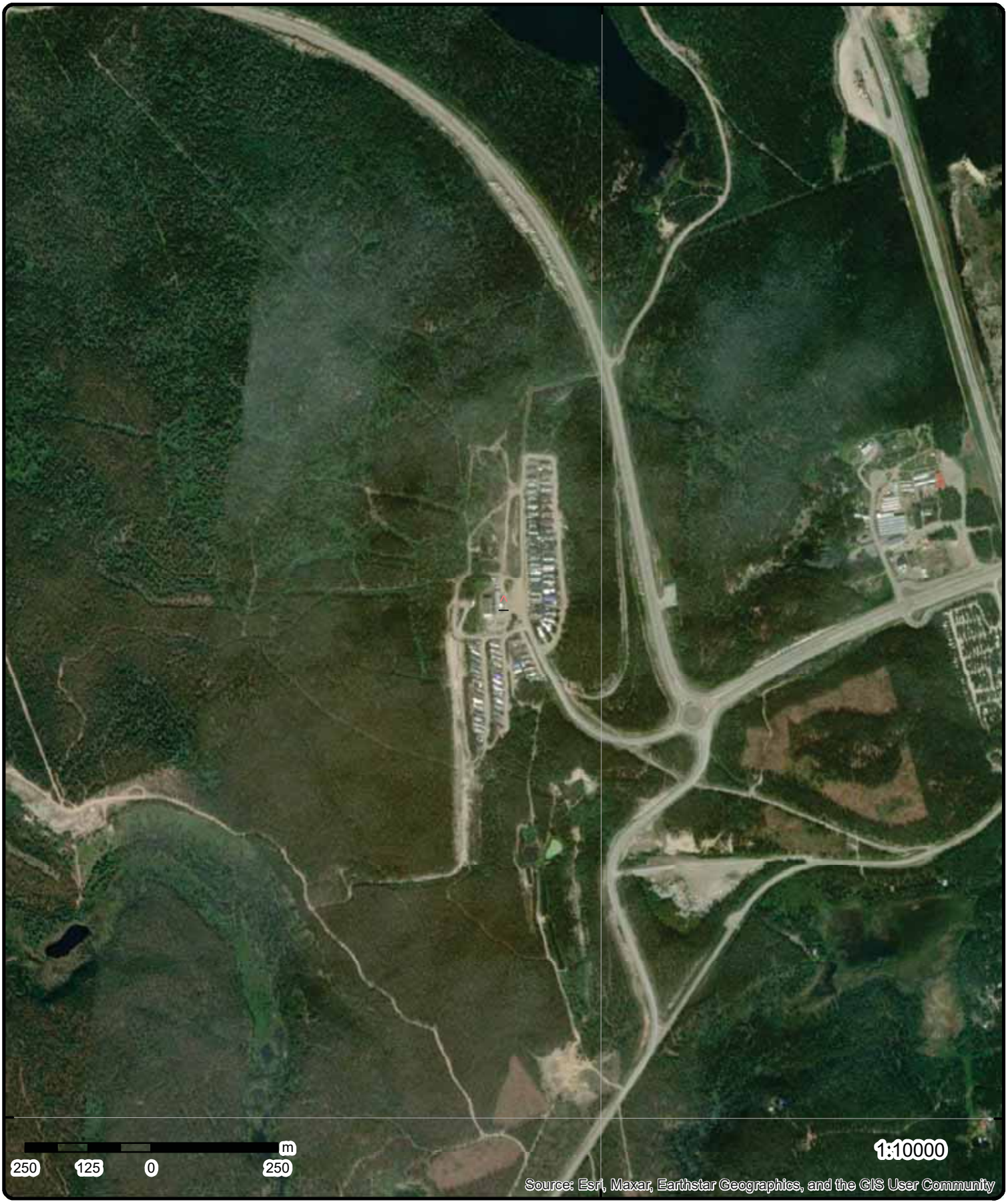
Order Number: 25020700829
Address: n/a, Whitehorse, YT

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Freeways; Highways
- Traffic Circle; Ramp
- Major Arterial; Minor Arterial
- Local Road
- Service Road; Traffic Circle; Ramp
- Rail
- Beach
- Airport
- Industrial Area
- Military Base
- Aircraft Roads
- Native Reservation
- Hospital
- Shopping & Sports Area
- University/College
- Cemetery; Golf Course
- Parkt (National)
- Park (City/County)

Source: © 2021 ESRI StreetMap Premium.

© ERIS Information Limited Partnership

135°4'30"W



Aerial

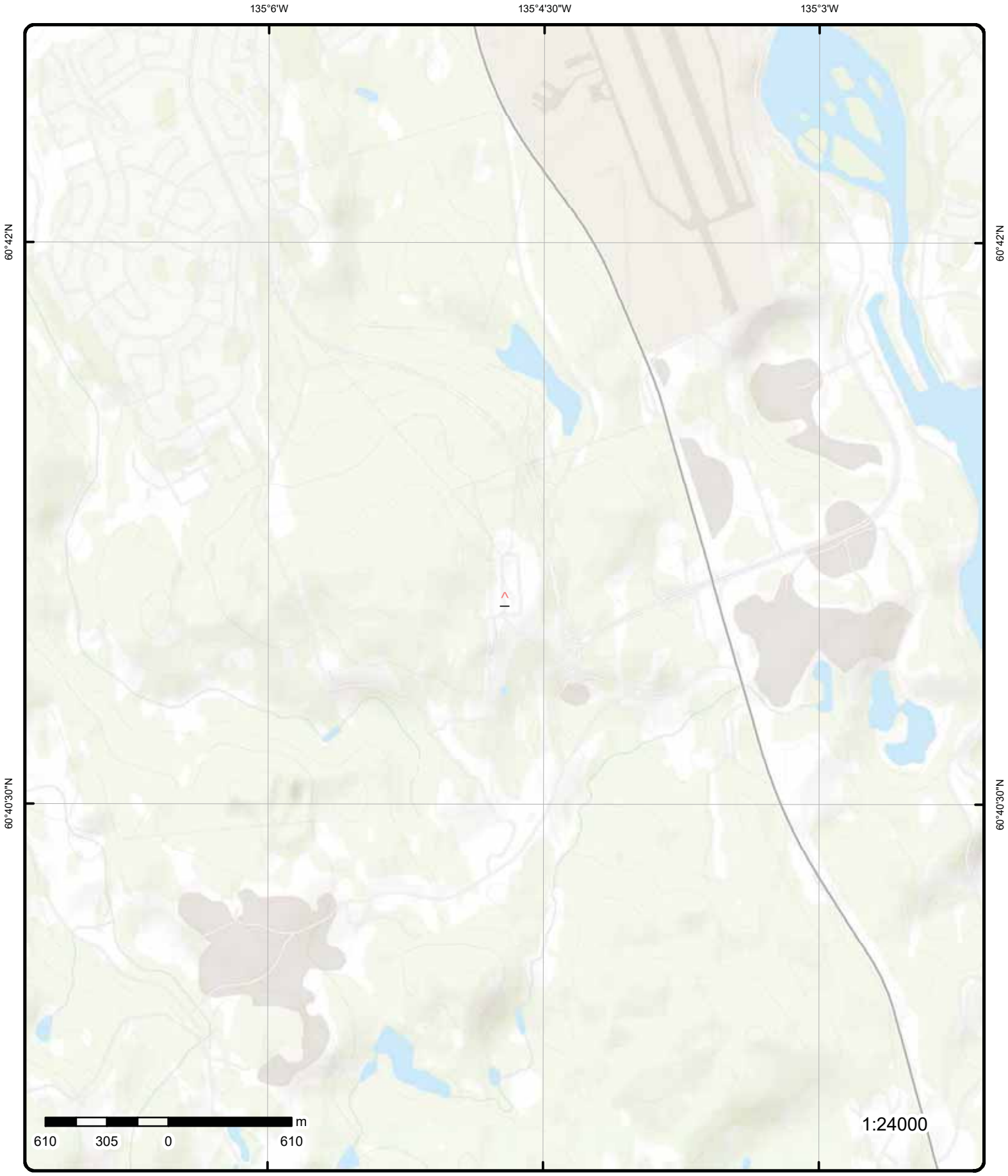
Year: 2022

Order Number: 25020700829

Address: n/a, Whitehorse, YT

Source: ESRI World Imagery

© ERIS Information Limited Partnership



Topographic Map

Order Number: 25020700829

Address: n/a, YT

Source: ESRI World Topographic Map

© ERIS Information Limited Partnership

Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 1	SE/302.3	793.6 / -11.39	Lobird Road between Alaska Highway and McLean Lake Whitehorse YT	CS

ID:		**Review Date:**	
Site File No:		**Reviewer:**	
Parcel ID:		**CLSR:**	
RP:		**LTO:**	
Classification:	Unknown	**Community:**	Whitehorse
Prim Land Use:	Commercial	**Coord Source:**	
COCS:	PHCs	**X:**	-135.07526500038784
Occurrence:		**Y:**	60.682007999941966
Spill File:		**Latitude:**	60.682008
Date Stat Change:		**Longitude:**	-135.075265
Responsible Party:			
Creation Date:			
Water Standard Exc:			
Soil Standards Exc:			
Legal Address:			
Land Use:			
Land Tenure:			
Water Use:			
Loc Contaminants:			

Public Summary: In June 2003, an unknown volume of oil and diesel was reportedly leaking from a semi truck on Lobird Road. An investigation and further study was planned but no results were submitted.

Summary:
Contaminants:
Info Source:
Legal Description:
Estimated Quantity:

Unplottable Summary

Total: 3 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
GEN	Northwestel	HAMILTON C/O	WHITEHORSE YT	
HIS	RADAR APARTMENTS	LOBIRD TRAILER PARK, Lobird Subdivision	WHITEHORSE YT	
NEES	Chena Corp	Lobird Trailer Park #17	Whitehorse YT	

Unplottable Report

Site: ***Northwestel***
HAMILTON C/O WHITEHORSE YT

Database: ***GEN***

Consignor ID: 41-138
Status:
Permit No:
Permit Type:
Permit Expiry Date:
Organization Name:
City:
Postal Code:
Data Source:

Manifest Details

Manifest No:	2402952-2	***Waste No 4:***	
POE:		***Physical State 4:***	
POX:		***Classification 4:***	
Waste No:		***TDGA 4:***	
Physical State:	Solid	***Quantity 4:***	
Classification:	8	***Units 4:***	
TDGA:	2800	***Packing No 4:***	0
Quantity:	900	***Packing Code No 4:***	0
Units:	Kg	***Packing Group 4:***	
Packaging No:	1	***Date Shipped:***	Wednesday, May 03, 2006
Packaging Code:	7	***Sched Arrival Date:***	Wednesday, May 03, 2006
Packing Group:	III	***Quantity Total:***	0
Waste No 2:		***Employee ID:***	
Physical State 2:		***Consignee ID:***	42-007
Classification 2:		***Consignee Name:***	General Waste
TDGA 2:		***Consignee Mailing:***	210 Valleyview Dr.
Quantity 2:		***Consignee Recv Site:***	143 Industrial Rd.
Units 2:		***Carrier ID:***	42-007
Packing No 2:	0	***Carrier Name:***	General Waste
Packing Code No 2:	0	***Carrier Veh Reg:***	
Packing Group 2:		***Carrier Reg Prov:***	
Waste No 3:		***Trailer Reg:***	
Physical State 3:		***Address1:***	210 Valleyview Dr.
Classification 3:		***City1:***	Whitehorse
TDGA 3:		***City2:***	Whitehorse
Quantity 3:		***Postal Code:***	Y1A 3E5
Units 3:		***Postal Code2:***	Y1A 3C9
Packing No 3:	0	***Postal Code3:***	Y1A 2V2
Packing Code No 3:	0	***State/Prov2:***	YT
Packing Group 3:		***State/Prov3:***	YT

Multi Consignor Form: FALSE
Multi Consignors:
Spl Hndlng/Emer Ins: Yukon Spills Line (867) 667-7244
Description: Waste Batteries, Wet Non spillable
Description 2:
Description 3:
Description 4:

Site: ***RADAR APARTMENTS***
LOBIRD TRAILER PARK, Lobird Subdivision WHITEHORSE YT

Database: ***HIS***

ID:	105D/11/161	***Designation:***	
Plan NO:	56533	***Current Use:***	residential
Lot NO:	421-133	***Past Use:***	DND offices, radio control

Latitude/Longitude:		***Muncipal Zoning:***	R9
Easting/Northing:		***Resource Type:***	Architecture
If Demolished:		***Renovation Date:***	Renovated into offices and residential suites: 1970's
Other Res. Types:		***First Nation Assoc:***	YES
Site/District NO:		***Settlement Lands:***	
Town/Site Map NO:		***Development Date:***	
Block/Group NO:	804	***Heritage Date:***	
Air Photo NO:		***Construction Date:***	1946
Ownership Dates:	1993-10-28 1987-09-09 1971-11-09	***Previous Address:***	
Current Ownership:	Private	***Context:***	
Historical Pattern:	Political; Social	***Condition Notes:***	
Building Size:		***Description:***	Two-storey metal-clad concrete structure
Contact Person:	Radar Apartments, Box 4442, Whitehorse Ph. 667-7640		

Development Rating:
Architectural History: Two-storey reinforced concrete structure; flat built-up roof; aluminum exterior cladding;
Period of Construction: 1940-1965
Previous Ownership: Whitehorse Savings Ltd. Lobird Corporation Hydra Ventures Notification (patent)
Present Condition: Foundation/Floor = Good; Roof = Good; Walls = Good; Windows/Doors = Good
Traditional Territory: KWANLIN DUN; TA'AN KWACH'AN

Site: ***Chena Corp***
Lobird Trailer Park #17 Whitehorse YT

Database: ***NEES***

Incident Date: 5/1/01 23:30
Contaminant: diesel
Amount: 100
Units: Gallons (US, liquid)
Quantity: Estimate
Cause: Above Ground Tank Leak
Source: Other
Reason:
Sector:

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Air Emission Permits: Territorial AIR

The Department of Renewable Resources maintains a database of companies/organizations who have acquired a permit under the "Air Emissions Regulation", for the operation of the following types of activities. These include the manufacturing of asphalt; production and exploration of oil and natural gas; quarrying, crushing and screening of stone/clay/ shale /coal/ minerals; processing or handling of coal; equipment capable of generating/burning/using heat energy; use of incinerators; the use of equipment for incineration of special waste; electrical generating facilities; and the storage/other handling of solid, liquid or gaseous materials. The database provides information pertaining to the permit number, expiry date, status and the type of permit.

Government Publication Date: 2000-Mar 31, 2024

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Apr 30, 2024

Dry Cleaning Facilities: Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

Government Publication Date: Jan 2004-Dec 2022

Chemical Register: Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

Government Publication Date: 1999-Apr 30, 2024

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 2012 -May 2024

Contaminated Site Inventory: Territorial CS

Yukon INAC Contaminated Sites Inventory is an inventory of sites of potential environmental concern compiled by Indian and Northern Affairs Canada. These sites on this inventory may or may not be contaminated and some might also be sites with solid waste/debris, old mining structures, etc. Inclusion on this list should not be taken as confirmation of contamination. Similarly, sites not included on this list should not be assumed to be free of contamination. For information on any of the sites listed below, contact the Environmental Programs Branch.

Government Publication Date: 1998-Feb 2024

Designated Material Permits: Territorial DMP

The Designated Material Regulations, under the Yukon Environment Act, mandates that anyone who is a retailer or depot operator of "designated materials" must obtain a permit. Where a depot operator has acquired a Solid Waste permit and it addresses the deport location, a designated materials permit is not required. As of May 2004, only tires are considered "designated materials". The provincial inventory provides information on the registered facility, location, permit number, status and expiry date.

Government Publication Date: Jul 2003-May 31, 2021

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Aug 31, 2024

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

Government Publication Date: Jun 2000-Nov 2024

Federal Identification Registry for Storage Tank Systems (FIRSTS): Federal FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

Government Publication Date: Oct 31, 2021

Fuel Storage Tanks: Territorial FST

The Yukon Department of Renewable Resources maintains an inventory of fuel storage tanks within the Territory. The tanks are registered to the department pursuant to Storage Tank Regulations, Environment Décret 1996/194 with permits. The Storage Tank Regulations came into effect on January 1, 1997. The regulations include requirements for the storage of hazardous substances, including petroleum products, pursuant to Part 10 of the Environment Act. This database applies to new tanks that are being installed or constructed; and existing tanks that undergo major renovations after January 1, 1997. Fuel storage tanks not found in this database include: those that have a capacity of 4,000 litres or less and are used to supply comfort heating systems; tanks that are used to store crude oil, and tanks used for aboveground storage of hazardous substances (other than petroleum products) with a capacity of less than 2000 litres.

Government Publication Date: 1997-Apr 2024

Waste Generators: Territorial GEN

List of waste generators included in waste manifest data made available by Environment Yukon.

Government Publication Date: 1997-Jul 2023

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Apr 2024

Historic Sites Inventory: Territorial HIS

The Heritage Branch of the Yukon government maintains an inventory of historic sites within the Territory. The database provides information on history, condition, ownership, location, resource type, and date of construction. Please note that even though the inventory was initiated in 1987, the database does contain records where the date of construction of a historic site was previous to 1895. The list of historic sites is no longer available from the Yukon government.

Government Publication Date: 1987-Aug 2002*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

Land Treatment Facilities: Territorial LTF

The Yukon's Contaminated Sites Regulation mandates that permits must be acquired for the construction and operation of Land Treatment Facilities - for the purpose of restoring and rehabilitating contaminated soil, sediment, snow or other similar media. The provincial inventory provides information on the registered facility, location, permit number, status and expiry date.

Government Publication Date: 1998-Mar 31, 2024

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Territorial MNR

The Yukon Geology Program maintains an inventory of 2577 separate mineral occurrences in the Yukon, which document metallic, industrial mineral and coal deposits. Information within the database pertains to owner/operator, year, name, claim name, status, deposit type, mining district, tectonic element and commodity.

Government Publication Date: 1900-Jun 2024

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Dec 31, 2024

National Energy Board Wells: Federal NEBT

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPR2

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of pollutant releases (to air, water and land), disposals, and transfers for recycling. The inventory, managed by Environment and Climate Change Canada, tracks over 300 substances. Under the authority of the Canadian Environmental Protection Act (CEPA), owners or operators of facilities that meet published reporting requirements are required to report to the NPRI.

Government Publication Date: Feb 2024

National Pollutant Release Inventory - Historic: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances. This data holds historic records; current records are found in NPR2.

Government Publication Date: 1993-May 2017

Ozone Depleting Substances & Other Halocarbons: Territorial ODS

The Yukon's Ozone Depleting Substances & Other Halocarbon (ODS) Regulations regulate the handling, use and sale of Ozone Depleting Substances (ODS) in the Yukon. The release of ODS's are prohibited, with certain exemptions found in s.2 (2) of the Regulations. Ozone depleting substances are considered to be CFC's, Halons, Chlorocarbon compounds and Hydro chlorofluorocarbons. Other Halocarbons refer to Hydrofluorocarbons and Perfluorocarbons. The provincial inventory provides information on the registered facility, location, permit number, status and expiry date.

Government Publication Date: 2000-Mar 31, 2024

Oil and Gas Wells: Private OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-May 31, 2024

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Territorial PES

This is a database of individuals who apply for a "service", "vendor" or "usage" license for those specific pesticides and fertilizers that require a permit. The database is maintained by the Department of Renewable Resources, and provides information pertaining to the permit number, expiry date, status and the type of permit.

Government Publication Date: 1998-Mar 31, 2024

NPRI Reporters - PFAS Substances: Federal PFCH

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of releases, disposals, and transfers, tracking over 320 pollutants. Per - and polyfluoroalkyl substances (PFAS) are a group of over 4,700 human-made substances for which adverse environmental and health effects have been observed. This listing of PFAS substance reporters includes those NPRI facilities that reported substances that are found in either: a) the Comprehensive Global Database of PFASs compiled by the Organisation for Economic Co-operation and Development (OECD), b) the US Environmental Protection Agency (US EPA) Master List of PFAS Substances, c) the US EPA list of PFAS chemicals without explicit structures, or d) the US EPA list of PFAS structures (encompassing the largest set of structures having sufficient levels of fluorination to potentially impart PFAS-type properties).

Government Publication Date: Feb 2024

Potential PFAS Handlers from NPRI: Federal PFHA

The National Pollutant Release Inventory (NPRI) is Canada's public inventory of releases, disposals, and transfers, tracking over 320 pollutants. Per - and polyfluoroalkyl substances (PFAS) are a group of over 4,700 human-made substances for which adverse environmental and health effects have been observed. This list of potential PFAS handlers includes those NPRI facilities that reported business activity (NAICS code) included in the US Environmental Protection Agency (US EPA) list of Potential PFAS-Handling Industry Sectors, further described as operating in industry sectors where literature reviews indicate that PFAS may be handled and/or released. Inclusion of a facility in this listing does not indicate that PFAS are being manufactured, processed, used, or released by the facility - these are facilities that potentially handle PFAS based on their industrial profile.

Government Publication Date: Feb 2024

Waste Receivers: Territorial REC

The Department of Renewable Resources maintains a "Waste Manifest" which details information regarding waste transfers from generating facilities to registered Receivers. The provincial inventory provides information on the waste receiving facility name, location, physical state (solid/liquid), waste type, amount/quantity received and the degree of danger.

Government Publication Date: 1997-Jul 2023

Relocation Permits: Territorial REL

The Yukon's Contaminated Sites Regulation mandates that permits must be acquired in order to move contaminated material from one site to another. The provincial inventory provides information on the registered facility, location, permit number, permit type, and status.

Government Publication Date: 1998-Mar 31, 2024

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Apr 30, 2024

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Spills: Territorial SPL

Environment Canada maintains an inventory of known spills that have occurred throughout the Yukon and are reported under the Yukon Spills Regulations. The database identifies spill source, substance discharged, amount of discharge, reason for spill and approximate location of occurrence within the Yukon.

Government Publication Date: 1972-2000

Special Waste Permits: Territorial SWP

The Special Waste Regulations, under the Yukon Environment Act, mandate that anyone who generates, stores, handles, mixes, transports, disposes or releases special wastes is to acquire a "Special Waste" permit. Permits are required for both special waste generators and special waste facilities. The provincial inventory provides information on the generating/waste receiving facility, location, permit number, permit type (generator, facility), status and types of waste generated/received.

Government Publication Date: 1998-Mar 31, 2024

Waste Disposal Sites: Territorial WDS

This inventory pertains to active, regulated waste disposal sites within the Yukon, where registered sites hold a permit for acceptance of different forms of solid waste. This database provides information in regard to permit number, type of waste accepted, status and permit type. Please note that references within the database to SPW and AER, are in regard to the Special Waste Regulation and Air Emissions Regulation respectively.

Government Publication Date: 2000-Mar 31, 2024

Yukon Oil and Gas Wells: Territorial YOGW

The Yukon Oil and Gas Resources Branch is responsible for maintaining a database of all oil and gas wells drilled in the Yukon. All well locations were provided by the National Energy Board and verified through branch field inspections. The database details information on well owner/operator, well name, location, drill date, well id, status, elevation, class, and depth of the well.

Government Publication Date: Apr 1957-Mar 2024

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

ERIS

CITY
DIRECTORY

Project Property: *115825012*
n/a
Whitehorse, YT

	Whitehorse,YT
Project No:	
Requested By:	*Stantec Consulting Ltd. - Canada*
Order No:	*25020700829*
Date Completed:	*February 18, 2025*

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

February 18, 2025
RE: CITY DIRECTORY RESEARCH
n/a
Whitehorse,YT

Thank you for contacting ERIS regarding our City Directory Search services. Our staff has conducted a reverse listing City Directory search to determine prior occupants of the subject site and adjacent properties. When searching a range of addresses, all civic addresses within that range found in the Directory are included.

Note: Reverse Listing Directories generally are focused on highly developed areas, while newly developed areas may be covered in the more recent years, older directories tend to cover only "central" parts of the city. To complete the search, we have either utilized the Toronto Reference Library, Library & Archives Canada and multiple digitized directories. While these do not claim to be a complete collection of all reverse listing city directories produced, ERIS has made every effort to provide accurate and complete information. ERIS shall not be held liable for missing, incomplete, or inaccurate information. If you believe there are additional addresses or streets that require searching, please contact us.

Search Criteria:

ALL of Lobird Court

Search Notes:

Lobird Court is also known as ALL Lobird Road in Whitehorse.

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

Search Results Summary

Data from 2012 to 2017 does not include residential information

Date	Source	Comment
2023	DIGITAL BUSINESS DIRECTORY	
2021	DIGITAL BUSINESS DIRECTORY	
2017	DIGITAL BUSINESS DIRECTORY	
2012	DIGITAL BUSINESS DIRECTORY	
2000	POLKS	
1997	HENDERSONS	
1969	TERRITORIAL PUBLICATIONS	

Environmental Risk Information Services
A division of Glacier Media Inc.
1.866.517.5204 | info@erisinfo.com | erisinfo.com

2023 LOBIRD COURT

SOURCE: DIGITAL BUSINESS DIRECTORY

200	**A SMITH**	*RESIDENTIAL*
200	**BRIAN HUBER**	*RESIDENTIAL*
200	**KYLA ADAMS**	*RESIDENTIAL*
200	**MIKE MORRICE**	*RESIDENTIAL*
200	**MURRAY BIGGIN**	*RESIDENTIAL*
200	**YUKON TREE SVC**	*LANDSCAPE CONTRACTORS*
200	**YUKON TREE SVC**	*TREE SERVICE*

2021 LOBIRD COURT

SOURCE: DIGITAL BUSINESS DIRECTORY

200	**A M SMITH**	*RESIDENTIAL*
200	**BRIAN HUBER**	*RESIDENTIAL*
200	**KYLA ADAMS**	*RESIDENTIAL*
200	**MIKE K MORRICE**	*RESIDENTIAL*
200	**MURRAY BIGGIN**	*RESIDENTIAL*
200	**YUKON TREE SVC**	*TREE SERVICE*
200	**YUKON TREE SVC**	*LAWN & GROUNDS MAINTENANCE*

2017 LOBIRD COURT

SOURCE: DIGITAL BUSINESS DIRECTORY

200	**MACK 'N' MACK ELECTRIC**...*NEW SINGLEFAMILY GENERAL CONTRS*
200	**MACK 'N' MACK ELECTRIC**...*ELECTRICAL CONTRS*
200	**YUKON TREE SVC**...*LANDSCAPE CONTRACTORS*
200	**YUKON TREE SVC**...*LANDSCAPING SVCS*
200	**YUKON TREE SVC**...*TREE SERVICE*
260	**GOLDEN CABS**...*SCENIC & SIGHTSEEING TRANSPORTATION, OTHER*
260	**GOLDEN CABS**...*TAXI SVC*

2012 LOBIRD COURT

SOURCE: DIGITAL BUSINESS DIRECTORY

200	**MACK 'N' MACK ELECTRIC**...*ELECTRICAL CONTRS*
200	**SOLAR 2**...*PLUMBING EQUIP MERCHANT WHOLS*
200	**YUKON TREE SVC**...*LANDSCAPE CONTRACTORS*

2000 LOBIRD COURT

SOURCE: POLKS

Ⓝ NEW NEIGHBOR

LINDEMAN RD
8 NORTHERN REINFORCING LIMITED rebar & structural steel. 633-5446
10 BALSAM'S TRAILER & TIRE REPAIR trailer-truck repr 667-7431
+ *LABERGE RD INTERSECTS*
BUSINESSES 3

LOBIRD RD -FROM ALASKA HWY WEST (LOBIRD SUB) 5

200 LOBIRD TRAILER PARK
Lots
1 Not Verified
3 Rousseau Ron & Lorraine 633-6339
4 Smith David T [2]
4 Smith A M
5 Thomas Lyle D & Judy ☗ 667-6255
6-7 Not Verified (2 Apts)
8 Toma Alexander A & Kathleen 668-5704
9 Wensink Henry W & Connie 633-4516
10-14 Not Verified (3 Apts)
15 Dillon Noel & Frieda 393-2538
16 Not Verified
17 Worthington Duane & Rose [6] 668-6359
18 Chaplin S [2]
19 Not Verified
20 Carter Ken B & Cindy 633-3749
21 Not Verified
23 Battersby L 668-4543
24 Vacant
25 Baumel Corrie 668-5629
26 Vacant
27-30 Not Verified (4 Apts)
31 Murtagh Peter L & M Lois

LOBIRD RD
212 Carpenter Russell & Candace [6] 668-6436
213-218 Not Verified (2 Apts)
219 Haydon-Low 393-3355
220 Biggin Murray [3] 633-2926
260 RADAR APARTMENTS.. 668-7640
101 Vacant
102-103 Not Verified (2 Apts)
104 Vacant
105-207 Not Verified (10 Apts)
208A Vacant
209A Bonney Chris..... 393-3198
+ *ALASKA HWY INTERSECTS*
BUSINESSES 4 HOUSEHOLDS 80

LOCUST PL -FROM 113 PONDEROSA DR EAST (PORTER CREEK SUB) 8

+ *PONDEROSA DR INTERSECTS*
1 Reinhardt R P & Clara ☗. 633-4013
Werrun Daman C 633-4013
3 Grey Bob & Gretta 633-4910
6 Hewitt Gary [6]..... 667-6868
7 Fischer Werner & Diane [6] ☗ 633-2346
+ *LOCUST PL ENDS*
HOUSEHOLDS 4

LODESTAR LA -FROM ALASKA HWY WEST (WHITEHORSE AIRPORT) 900

+ *ALASKA HWY INTERSECTS*
+ *CONDAR INTERSECTS*
40 WHITEHORSE AIR aircraft maintenance..... 668-7407
60 SPEEDY TELEVISION t v radio serv 668-2120
69a BIG SALMON AIR airline charter 668-4608
65 TUTCHONE AIR INC flight sch-

1997 LOBIRD COURT

SOURCE: HENDERSONS

LIARD RD *cont'd*
41 Reeve Lee [3]..... 668-6822
42Ⓝ Robertson Nicole..... 633-4793
ⓃGoldsmith John
ⓃLeschart Patricia..... 668-5060
43 Staffan Ted & Sue [3]..... 667-2900
ⓃSaffan Bailey & Jess ... 667-2992
44 Booth Jean [3]..... 667-7162
45Ⓝ Bochon Bruce ☗..... 633-2984
46a Smith B B [3]..... 668-6758
46b Clark Bob F & Lynn [3]... 668-4006
47 Loewen Dana [3] ☗..... 667-2278
Park Robert [3]..... 667-2278
48a Not Verified
48b Mc Cullough Margret..... 668-6086
49 Not Verified
50 Mc Intyre Gordon A & Ruth [3] ☗ 667-4325
51 Fry Alan & Eileen [3] ☗..... 667-2943
52 GROUP HOME
53 Zaitsoff Phil [3] 667-2747
55 Under Constn
57 MANH HO JANITORIAL janitorial 667-4603
Manh Ho & Mai [3] ☗ 667-4603
QTEC CARPET CLEANING SERVICE carpet cleaning 667-4603
Manh Linh
BUSINESSES 5 HOUSEHOLDS 58

LOBIRD TRLR CT RD -FROM ALASKA HWY SOUTH 1

1 Barr Daisy [3]..... 663-5084
Barr M..... 663-5084
3 Curtis Daniel [3] 667-6934
4Ⓝ Smeeton A M..... 667-7121
5 Thomas Lyle & Judy [3]..... 667-6255
7Ⓝ Kelly Mike D 633-5779
8 Toma Alexander & Kathleen [3] 668-5704
10 Not Verified

LOBIRD TRLR CT RD *cont'd*
208Ⓝ Robertson C..... 633-3507
210 Delairie Corinne J [3]..... 667-4157
210 Not Verified
211Ⓝ Laurie M 668-5765
212 Carpenter Russell & Candice [3] 668-6436
220Ⓝ Biggin Murray..... 633-2926
HOUSEHOLDS 55

LOCUST PL -FROM 113 PONDEROSA DR EAST 8

1 Vacant
3Ⓝ Brown Bill & Mikki..... 633-4823
6 Hewitt Gary [3]..... 667-6868
7 Fischer Werner & Diane [3]. 633-2346
HOUSEHOLDS 3

LOGAN RD -FROM HARVEY PL NORTH 1

28 NATIVE SONS CONSTRUCTION LTD..... 668-5680
ⓃJack Sylvester R 668-5680
29Ⓝ Williams Gordon & Janie. 633-2616
32 Speiss Robert [3]..... 633-5135
36 Wolsynuk Jerry & Cindy [3] 633-5013
40Ⓝ Webster Art..... 633-4312
Mac Donald Ann 633-4312
44 Hawkins James & Beth [3] 668-2639
48Ⓝ Schneider Darcy..... 633-4790
MC KAY LARRY REPAIR SERVICE 633-5146
ⓃMc Kay Larry & Moira. 633-4796
49 Mc Watters Brian [3]..... 668-3049
Tanner Kim J..... 668-3049
56 Osborne Clive [3]..... 667-697
60 Wilson Randall H [3]..... 668-76
64Ⓝ Bray Darryl..... 633-29
+ *CASTLE DR INTERSECTS*
72 Not Verified

31 Mahagin Peter & M Lois 633-6829
32 Vacant
33 Reese Fred & Shirley [6] ☗ 633-4494
33 Reese Scott 633-4494
34 Not Verified
35 Ashton Paul 668-7299
36 Bagnell Larry A [6] ☗ 667-7248
37 Tait James B [3] 633-5299
37 TAIT CURTIS PHOTOGRAPHY freelance photography 633-5299
38 Nickel R [6] 633-4695
39-42 Not Verified (4 Apts)
200 Vacant
101 Not Verified
102 Leiske Rod [3] 668-4978
104 SOLAR 2 alternative energy systems 633-5393
104 Selzer Kris [6] 668-6135
105 Morrice Mike K [6] .. 668-3148
106 Huber Brian [6] 668-3028
107 Not Verified
108 Polman Peter [3] 668-5012
109 Baxter Brian 668-4347
109 Mc Conkey George 668-4347
110 Not Verified
111 Haggarty Jeff 668-3650
112-113 Not Verified (2 Apts)
114 Kolescar Paul [2] 668-6126
115(N) Hunziker David 393-2230
116 St Denis Richard & Krista [3] 633-3554
201 Not Verified
202 Vacant
203(N) Laxton David 668-2565
204 Not Verified
205 Not Verified
206 Milenk C 667-6616
207 Not Verified
208 Robertson C [3] 633-3507
209 Not Verified
210 Delaire Corinne J [6] 667-4157

aerial photography 667-2488
67 HELI DYNAMICS LIMITED aircraft charter 668-3536
105 ALKAN AIR LIMITED airline co 668-2107
BUSINESSES 6

LOGAN RD -FROM HARVEY RD NORTH (PINERIDGE SUB) 1

+ HARVEY RD INTERSECTS
28 NATIVE SONS CONSTRUCTION LTD 668-5680
Jack Sylvester R [3] 668-5680
29 Williams Gordon & Janice [3] 633-2616
32 Speiss Robert [6] 633-5135
36 Wolsynuk Jerry & Cindy [6] 633-5013
40 Webster Art [3] 633-4312
Mac Donald Ann 633-4312
+ ARKELL PL INTERSECTS
44 Hawkings James & Beth [6] 668-2639
45 Petriw D B 633-2487
48 MC KAY LARRY REPAIR SERVICES 633-5146
Mc Kay Larry & Moira [2] 633-4796
49 Mc Watters Brian [6] 668-3049
Tanner Kim 668-3049
52 Vacant
56 Osborne Clive [6] 667-6976
60 Wilson Randall H & Lorraine [6] 668-7342
+ CASTLE DR INTERSECTS
64 Bray Darryl [3] 633-2956
+ KEELE PL INTERSECTS
72 Vacant
73 Oulton Doug & Brenda [3] 668-2135
Oulton Heather 668-2135
+ HALDANE RD INTERSECTS
+ TOMBSTONE RD INTERSECTS
BUSINESSES 2 HOUSEHOLDS 13

11 Acheson Harvey R [3] 668-2187
16 Not Verified
17 Worthington Duane & Rose [3] 668-6359
18(N) Evans Al & Trish 393-3935
19(N) Moug C 668-5730
20 Spendiff Gary [3] 633-2877
Roy D 633-2877
21 Not Verified
23(N) Battersby Leah 668-4543
24(N) Frederickson Jason 633-5397
25 Baumel Corrie [3] 668-5629
26 Tremblay Mederic [3] 667-7521
28(N) Jensen Wendy 663-2034
29(N) Anhorn Clarence 668-7282
30 Not Verified
32(N) Aucoin Richard 667-6429
33 Reese Scott [3] 633-4494
35(N) Aushton Paul 668-7299
36 Bagnell Larry [3] 667-7248
37(N) Tait Jamie 633-5299
38 Nickel R [3] 633-4695
40(N) Kraemer E 393-3975
42(N) Ward Sandra 633-4559
101(N) Curtis Barb 668-2938
102(N) Leiske Rod 668-4978
104(N) Solar Z 633-5393
Selzer Chris [3] 668-6135
105 Morrice Mike K [3] 668-3148
106 Huber Brian [3] 668-3028
107 Not Verified
108(N) Polmarn Peter 668-5012
108-110 Not Verified (2 Hses)
111(N) Cleaver Jim 668-5128
113(N) Marten Aaron 667-6782
114 Not Verified
115(N) Forrest Kent 668-6237
116(N) St Denis Richard & Krista 633-3554
201-202 Not Verified (2 Hses)
203(N) Parkinson D 667-7830
206 Not Verified
207 Martin Allan D [3] 667-4877

73(N) Oulton Doug & Brenda 668-2135
Coulton Heather 668-2135
+ HALDENE RD INTERSECTS
+ TOMBSTONE RD INTERSECTS
BUSINESSES 2 HOUSEHOLDS 14

LOGANBERRY LA -FROM COUCH RD EAST 7

2(N) Jefferson J 668-6210
7(N) Mulvahill Dewey 633-4159
HOUSEHOLDS 2

LONG LK RD -FROM HOSPITAL RD 2

244 Not Verified
244 Dickson Janet L [3] 677-7059
244 Not Verified
Davies Robert [3] 668-3406
Davies Debbie [3] 668-3406
244 Not Verified
HOUSEHOLDS 6

LOON RD -FROM 83 SANDPIPER DR NORTH 4

6-7 Not Verified (2 Hses)
8(N) Buyck James & Marnie ☗. 393-3706
10-12 Not Verified (2 Hses)
14 Under Constn
16 MC LEAN CONTRACTING 633-3949
17(N) Sembsmoen John ☗ 668-5023
18-19 Not Verified (2 Hses)
20(N) Schneider D 633-5391
21(N) Burnett Doug W ☗ 633-5039
22 Not Verified
23(N) Janz Vern & Brenda
24(N) Anthron Kevin & Jackie ... 668-6521
25(N) Mc Neill J 633-6142
26 Not Verified
27 Under Constn
28-29 Vacant (2 Hses)
31(N) Kelly Geoff ☗ 668-5683
33-35 Not Verified (2 Hses)

1969 LOBIRD COURT

SOURCE: TERRITORIAL PUBLICATIONS

STREET NOT LISTED

5.54 Whitehorse – Lobird Park Water Supply System

40023 Yukon Inc. (leased to Chena Corporation) owns and operates one public drinking water system at Lobird Park (trailer park), located approximately 1 km west of the Alaska Highway and about 3 km south of the Hillcrest Subdivision, in Whitehorse, Yukon. The system obtains water from five deep drilled groundwater wells (Wells 1, 2, 4, 6 and 8) and is supplemented by water delivery provided by Yukon Water Services due to low groundwater well yields (Tetra Tech 2012). Well 6 is used only seasonally due to freezing issues (Tetra Tech 2012). Wells 1, 2 and 4 are located next to Ice Lake. Wells 6 and 8 are located next to the Radar Apartments and at the north end of Lobird Park, respectively. Three additional wells, Wells 3, 5 and 7, have not been in use since about 2003 (Jacobsen 2003). The system is classified as a Large Public Drinking Water Supply System under the Yukon Drinking Water Regulations – Guidelines for Part I – Large Public Drinking Water Systems (YG 2007).

5.54.1 Data Compilation Methodology

Tetra Tech approached the water system stakeholders including the water system owner/operator and regulators to let them know the project was in progress and to request their assistance in compiling the most complete data set possible. Data regarding the Lobird Park water supply system was requested from the following proponents:

- Lobird Water System Owner/Operator Blake Battersby was contacted and provided review comments for the system summary.
- YG Environmental Health – YG EHS was contacted for use of the 2012 LPDWS review report, verification of source water protection planning and to provide review comments and feedback throughout the project.

5.54.2 Hydrogeology

Wells 1, 2 and 4 are completed in bedrock at depths ranging from 103.6 m to 216.4 m bgs near Ice Lake. According to the well logs for these wells, the depth to bedrock is relatively shallow, ranging from 2.1 m to 6.7 m bgs. Wells 6 and 8 are located in the Lobird Park area and completed in bedrock to 74.7 m bgs and 93 m bgs, respectively, overlain with approximately 7 m of overburden. The bedrock type is not indicated on the driller's well records; however, based on surficial geology maps for the area, it is anticipated to be granodiorite. Approximate well yields indicated on the well logs suggest that the bedrock aquifer (fractures) that the wells intersect have low yields, typical of a granodiorite (Tetra Tech 2012).

Bedrock aquifers can be subject to rapid transport of potential contaminants of concern, particularly when there is little overburden cover over the bedrock, or when there are bedrock outcrops nearby. The vulnerability of the bedrock aquifer was not assessed as the well logs had insufficient information regarding well fractures and discontinuities to identify aquifer zones and to semi-quantitatively evaluate the vulnerability (Tetra Tech 2012).

Wells 1, 2, 3, 4 and 5 are located within 60 m of the nearest surface body of water, Ice Lake. The nearest water body to Wells 6, 7 and 8 are the Lobird sewage treatment lagoons located about 400 m south of Well 8 and Icy Lake about 900 m northeast of Well 7.

5.54.3 Summary of Wells

The well logs for the five wells serving the Lobird Park drinking water system are included in the GIS map and database portion of this project. The following tables summarize the completion characteristics of the public drinking water wells at Lobird Park.

Table 5-142: Lobird Public Drinking Water System, Well 1 Summary

Well Construction Parameters	Details	Source
Date of construction	Well was completed by Midnight Sun Drilling Co. Ltd. in August 1986	Well log
Total well depth	216.4 m bgs	
Casing	6" (152 mm) OD Steel Well Casing	
Casing depth	Approximately 13 m bgs (approximately 2 m into bedrock)	
Well screen	No well screen installed	
Static water level	Approximately 1.7 m bgs (August 1988)	
Sanitary seal	No record of sanitary seal installation. Wellhouse has a concrete floor.	Tetra Tech 2012
Wellhead completion	The wellhead is equipped with an improvised plastic well cap. Housed in a locked wooden enclosure, freeze protected with heat trace extending into the well.	
Wellhead stickup	Approximately 0.5 m ags	
Well rated capacity (estimated by the driller)	0.27 to 0.3 L/s (3.5 to 4.0 IGPM)	Well log
Well GUDI status	Potentially GUDI	Tetra Tech 2012
Well Construction Comments:	Well was not constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

Table 5-143: Lobird Public Drinking Water System Well 2 Summary

Well Construction Parameters	Details	Source
Date of construction	Well was completed by Midnight Sun Drilling Co. Ltd. in July 1985	Well log
Total well depth	103.6 m bgs	
Casing	6” (152 mm) OD Steel Well Casing	
Casing depth	3.5 m bgs	
Well screen	No well screen installed	
Static water level	2.2 m bgs (July 1985)	
Sanitary seal	No record of sanitary seal installation. Wellhouse has a concrete floor.	Tetra Tech 2012

Table 5-143: Lobird Public Drinking Water System Well 2 Summary

Well Construction Parameters	Details	Source
Wellhead completion	The wellhead is equipped with an improvised plastic well cap. Housed in a locked metal enclosure, freeze protection consists of heat trace extending into the well.	Well log
Wellhead stickup	Approximately 0.5 m ags	
Well rated capacity (estimated by the driller)	0.38 L/s (5 IGPM)	
Well GUDI status	Potentially GUDI	Tetra Tech 2012
Well Construction Comments:	Well was not likely constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

Table 5-144: Lobird Public Drinking Water System, Well 4 Summary

Well Construction Parameters	Details	Source
Date of construction	Well was completed by Midnight Sun Drilling Co. Ltd. in October 1990	Well log
Total well depth	112.8 m bgs	
Casing	6" (152 mm) OD Steel Well Casing	
Casing depth	6.5 m bgs (4 m into bedrock)	
Well screen	No well screen installed	
Static water level	3.4 m bgs (October 1990)	
Sanitary seal	No record of sanitary seal installation.	Tetra Tech 2012
Wellhead completion	The wellhead is equipped with an improvised plastic well cap. Housed in a locked wooden enclosure, freeze protected with heat trace extending into the well.	Tetra Tech 2012
Wellhead stickup	0.75 m ags	Tetra Tech 2012
Well rated capacity (estimated by the driller)	0.04 L/s (0.5 IGPM)	Well Log
Well GUDI status	Potentially GUDI	Tetra Tech 2012
Well Construction Comments:	Well was not likely constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

Table 5-145: Lobird Public Drinking Water System, Well 6 (Seasonal Use Only) Summary

Well Construction Parameters	Details	Source
Date of construction	Well was completed by Midnight Sun Drilling Co. Ltd. in June 1990	Well log
Total well depth	74.7 m bgs	
Casing	6" (152 mm) OD Steel Well Casing	
Casing depth	12 m bgs (5 m into bedrock)	
Well screen	No well screen installed	
Static water level	8.5 m (June 1990)	
Sanitary seal	No record of sanitary seal installation.	Tetra Tech 2012
Wellhead completion	The wellhead is equipped with an improvised plastic well cap. Housed in a locked wooden enclosure and equipped with freeze protection.	p.c. Blake Battersby 2017
Wellhead stickup	0.5 m ags	Tetra Tech 2012
Well rated capacity (estimated by the driller)	0.27 L/s (3.5 IGPM)	Well log
Well GUDI status	Potentially GUDI	Tetra Tech 2012
Well Construction Comments:	Well was not likely constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

Table 5-146: Lobird Public Drinking Water System, Well 8 Summary

Well Construction Parameters	Details	Source
Date of construction	Well was completed by Midnight Sun Drilling Co. Ltd. in October 1997	Well log
Total well depth	93 m bgs	
Casing	6 $^{5}/_{8}$" (168 mm) OD Steel Well Casing	
Casing depth	7.5 m bgs (1 m into bedrock)	
Well screen	No well screen installed	
Static water level	25.1 m bgs (October 1997)	
Sanitary seal	No record of sanitary seal installation.	Tetra Tech 2012
Wellhead completion	The wellhead is equipped with an improvised plastic well cap. Housed in a locked wooden enclosure and freeze protection consists of heat trace.	

Table 5-146: Lobird Public Drinking Water System, Well 8 Summary

Well Construction Parameters	Details	Source
Wellhead stickup	0.55 m ags	
Well rated capacity	0.38 L/s (5 IGPM)	Well log
Well GUDI status	Potentially GUDI	Tetra Tech 2012
Well Construction Comments:	Well was not likely constructed to meet Canadian Groundwater Association Well Construction Guidelines.	

5.54.4 Source Water Quality

In 2012, as part of the LPDWSA, Tetra Tech reviewed water quality results for the Lobird Park wells from 2005 to 2010. The following summary is based on the water quality review from that report:

- Water from the wells serving the Lobird system is mixed and treated for uranium before the sampling point, the water quality, after uranium removal, is characterized as calcium-bicarbonate type with a pH of 7.2 to 7.5 and is considered very hard with a measured hardness of 363 mg/L;
- The combined treated water source from the Lobird Park public drinking water system meets the GCDWQ with the exceptions of the AO for total manganese and the MAC for total uranium;
- Manganese in treated water sample is in exceedance of the GCDWQ AO value in 2008, but is found to be below the GCDWQ AO value in 2009 and 2010; and
- In June 2010, the uranium concentration in the treated water sample exceeded the GCDWQ MAC. Environmental Health and the system operator investigated the issue and found that the resin in the uranium treatment system was not working properly. We understand that the water well use was discontinued until a new larger pre-filter was installed and the system was shown to be working properly.

5.54.5 Water Treatment and Distribution

Table 5-147: Lobird Public Drinking Water System Water Treatment and Distribution Details

	Details	Source
Owner/Operator	40023 Yukon Inc. (leased to Chena Corporation)	Tetra Tech 2012
Water source	Blended groundwater supplemented with trucked water delivery from City supply	
Number of wells serving the system	Wells 1, 2, 4 and 8 (year round). Well 6 used in summer	
Treatment type	Chlorination, aeration and uranium removal	Jacobsen 2003 and Tetra Tech 2012
Number of connections	Approximately 250 people	

Table 5-147: Lobird Public Drinking Water System Water Treatment and Distribution Details

	Details	Source
Delivery method	Piped	
Age of system/last known major work	Installation of a new larger capacity pre-filter after 2012 to allow the uranium removal system to operate correctly	

5.54.6 Source Water Protection Planning

Some preliminary source water protection planning has been completed for this system in the form of a review of risk assessment tools for small community water supplies completed by Health Canada in 2009. The Lobird Park System was used as an example system for assessing the performance of the Australian Community Water Planner and the Ontario Risk Categorization Tool.

The pilot study identified potential risk scenarios but lacks key source water protection plan components including:

- Report does not identify well capture zones or wellhead protection areas;
- Report does not provide a thorough summary of risks to the groundwater resource;
- Report does not provide a summary of potential contaminant sources;
- Report does not provide any graphics or maps showing potential contaminant sources;
- Report does not evaluate the level of risk posed to the water system users; and,
- No recommendations for improving source water security or managing potential risks to the system are provided.

5.54.7 Water Supply Information Data Gaps

Tetra Tech has completed the LPDWSA work for the Lobird Park in 2012, review comments have been provided by the water system owner and operator and YG EHS has provided data where available. We have identified the following data gaps:

- While some preliminary assessment of risk to the system has been completed, no SWPP is in place for this system. As the wells are completed in two areas, with Wells 1 through 5 completed in close proximity to a surface water body and Wells 6, 7 and 8 located in close proximity to anthropogenic sources of contamination, Tetra Tech recommends developing a formal SWPP for this system.
- Tetra Tech had recommended the decommissioning of Wells 3, 5 and 7 and possibly Well 8 in 2012; however, we understand that Wells 3, 5, and 7 are not in use, but will be maintained for potential future use and that use of Well 8 will be continued; and
- Tetra Tech was not able to find any record that a GUDI assessment has been completed on the wells.

Appendix D Site Photographs

Stantec

Photographic Log

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 1

Photo Location:
Northern portion of the Site

Direction:
West

Survey Date:
2/11/2025

Comments:
Heavy machines parked at the Site.

Photograph ID: 2

Photo Location:
Northern portion of the Site

Direction:
North

Survey Date:
2/11/2025

Comments:
Residential buildings, sheds, and abandoned cars

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 3

Photo Location:
Northern portion of the Site

Direction:
North

Survey Date:
2/11/2025

Comments:
Residential buildings, sheds, and abandoned cars

Photograph ID: 4

Photo Location:
Northern portion of the Site

Direction:
South

Survey Date:
2/11/2025

Comments:
Abandoned cars

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 5

Photo Location:
Northern portion of the Site

Direction:
North

Survey Date:
2/11/2025

Comments:
Abandoned cars and equipment

Photograph ID: 6

Photo Location:
Northern portion of the Site

Direction:
South

Survey Date:
2/11/2025

Comments:
RVs and trucks parked at the Site

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 7

Photo Location:
Northern portion of the Site

Direction:
East

Survey Date:
2/11/2025

Comments:
Residential building along the Lobird road

Photograph ID: 8

Photo Location:
Central portion of the Site

Direction:
West

Survey Date:
2/11/2025

Comments:
A locked shed, an abandoned boat, an empty bucket

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 9

Photo Location:
Central portion of the Site

Direction:
West

Survey Date:
2/11/2025

Comments:
Entrance to the Radar Apartment building, located at the center of the Lobird community

Photograph ID: 10

Photo Location:
Central portion of the Site

Direction:
East

Survey Date:
2/11/2025

Comments:
Abandoned building and wooden casing at the center of the Lobird community

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 11

Photo Location:
Central portion of the Site

Direction:
East

Survey Date:
2/11/2025

Comments:
Wood waste at the center of the Lobird community

Photograph ID: 12

Photo Location:
Central portion of the Site

Direction:
West

Survey Date:
2/11/2025

Comments:
Fly Shop located at the central portion of the Site, on Lobird road

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 13

Photo Location:
Central portion of the Site

Direction:
East

Survey Date:
2/11/2025

Comments:
Two metal boxes, locked at the central portion of the Site

Photograph ID: 14

Photo Location:
Central portion of the Site

Direction:
East

Survey Date:
2/11/2025

Comments:
Possible oil staining on snow near the metal boxes at the central portion of the Site

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 15

Photo Location:
Central portion of the Site

Direction:
North

Survey Date:
2/11/2025

Comments:
Unknown connection of the building located at the central portion of the Site

Photograph ID: 16

Photo Location:
Central portion of the Site

Direction:
North

Survey Date:
2/11/2025

Comments:
General view of the Radar Apartment building, pole mounted transformers observed.

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 17

Photo Location:
Central east side of the Site

Direction:
Northeast

Survey Date:
2/11/2025

Comments:
Tire dump/stockpile

Photograph ID: 18

Photo Location:
Central east side of the Site

Direction:
South

Survey Date:
2/11/2025

Comments:
Sewage signage located at the central portion of the Site, north side of the lagoons

Client:	**Lobird Living Corp**	**Project:**	**Phase I Environmental Site Assessment**
Site Name:	**Lobird Estates Country Residential Development**	**Site Location:**	**Lobird Estates, Whitehorse, Yukon**

Photograph ID: 19

Photo Location:
Development Area

Direction:
West

Survey Date:
2/11/2025

Comments:
Proposed Development Area

Photograph ID: 20

Photo Location:
Development Area

Direction:
West

Survey Date:
2/11/2025

Comments:
Proposed Development Area

Appendix G Engagement Overview

Engagement Plan Overview

According to the City of Whitehorse Master Plan policy, there should be three engagement opportunities during the Master Planning process; initial engagement during the project launch, concept engagement during the drafting of the land use concept and plan engagement during the drafting of the Master Plan.

This Engagement Plan section will set out goals of engagement, the specific activities planned and how input will be tracked, summarized and used.

In 2024, an OCP amendment to amend the designation of the Development Parcel to Residential Country was brought to City Council. A public hearing was held as part of this process and this was the initial engagement on this project and was an opportunity to introduce the project and gather feedback from community members. Our engagement plan, outlined below sets out three public engagement sessions. Lastly, there will be a final public hearing as part of the zoning amendment process.

Engagement Goals

The broad objectives of this engagement project are to:

- Provide clear, transparent and meaningful public engagement opportunities;
- Ensure that Lobird Estates residents, nearby property owners and the public understand the proposed Highland Estates country residential development and answer any questions they may have; and
- Understand any potential concerns the public may have with the proposed developed so they can be considered and integrated into the concept plan as appropriate.

Stakeholder Review

The following table gives an overview of the various stakeholders and what their interest in this project might be.

Stakeholder	Interests	Proposed Engagement Tools
Primary Stakeholders – We will inform, consult, and involve primary stakeholders so that they are understand the development plans and can provide input that will help to guide the concept plan.		
Lobird Estates Residents	Interests may include: • Current and historical use of the Development Parcel. • Providing input on current use of the Development Parcel. • Understanding and providing comments on the concepts. • Impacts related to construction.	• Letter and poster invitation to an in-person meeting and an online presentation. • In-person open house to share draft concept plan earlier in the process. • Online presentation to share final concept plan later in the process.
Public Stakeholders – We will inform the public about the proposed development and opportunities to get more information and provide comments.		

General Public	• May have a general interest in this project. • May have concern about the proposed development or may have questions about the project.	• Public open house and online presentation.

Engagement Activities

The table below provides an overview of the proposed engagement activities for this Master Planning process.

Engagement Activity	Description	Materials Needed	Schedule
Phase 1 – Initial Engagement – COMPLETE			
Public Open House	• An open house will be held at a suitable location as close to the Development Parcel as possible. • We will share preliminary information about the development project and gather feedback.	• Letter to Lobird residents. • Poster advertising the meeting. • Display board.	March, 2025
Phase 2 – Concept Engagement – COMPLETE			
Stakeholder Outreach	• Prepare an information package including the draft concept plan and an overview of the project to share with stakeholders. • Offer to meet one-on-one with YG departments and First Nations.	• Introductory letter and information package.	April - May, 2025
Public Open House	• An open house will be held at a suitable location as close to the Development Parcel as possible. • We will share the draft Concept Plan and gather feedback. • The feedback will be used to help refine the design of this new neighbourhood.	• Letter to Lobird residents. • Poster advertising the meeting. • Display board.	April - May, 2025
Phase 3 – Plan Engagement – COMPLETE			
Stakeholder Outreach	• Prepare an information package including the draft concept plan and an overview of the project to share with Kwanlin Dün First Nation. Offer to meet one-on-one.	• Outreach letter and information package.	April – May, 2026
Public Open House to share Final Master Plan	• Once the Concept Plan has been finalized, we will host an online line meeting to share this information with interested parties.	• Letter to Lobird residents. • Poster advertising the meeting. • Presentation.	May - June, 2026

		• Master Plan and information package.	
Phase 4 – Final Engagement - Planned for August 5			
Stakeholder Outreach	• Prepare an information package including the final Concept Plan and an overview of the project to share with Kwanlin Dün First Nation and YG Land Development Branch. Offer to meet one-on-one. • The Final Master Plan will also be shared with key stakeholders.	• Outreach letter and information package.	August 2026
Open House to share Master Plan	• Once the Concept Plan has been finalized, we will host a community open house meeting to share this information with interested parties.	• Letter to Lobird residents. • Poster advertising the meeting. • Presentation. • Master Plan and information package.	August 2026

Appendix H What We Heard Report

Highland Estates Mater Plan

What We Heard Report

Prepared for:
Lobird Living Ltd.

Prepared by:
Stantec Consulting

August 11, 2026

Project/File:
115825012

Stantec Consulting Ltd.

Lobird Master Plan Engagement

Table of Contents

1 Engagement overview 1
2 Engagement Phase 1 2
2.1 Public engagement activities 2
2.2 What We Heard – Phase 1 3

3 Engagement Phase 2 4
3.1 Public engagement activities Phase 2 4
3.2 What We Heard – Phase 2 4
3.3 Outreach activities – Phase 2 5

4 Engagement Phases 3 7
4.1 Public engagement activities Phase 3 7
4.2 What We Heard – Phase 3 7
4.3 Outreach activities – Phase 3 8

5 Engagement Phases 4 9
5.1 Public engagement activities Phase 4 9
5.2 What We Heard – Phase 4 10
5.3 Outreach activities – Phase 4 10

Appendix A Engagement Plan 2
Appendix B Phase 1 Meeting Materials 3
Appendix C Phase 2 Meeting Materials 4
Appendix D Phase 3 Meeting Materials 5
Appendix E Phase 4 Meeting Materials 6

1 Engagement overview

This What We Heard report summarizes the outcomes of the engagement process related to the development of a Master Plan for Highland Estates, a country residential development being planned west of the Lobird Mobile Home Park in Whitehorse.

According to the City of Whitehorse Master Plan policy, there should be three engagement opportunities during the Master Planning process; initial engagement during the project launch, concept engagement during the drafting of the land use concept and plan engagement during the final drafting of the Master Plan.

In 2024, an OCP amendment to amend the designation of the Development Parcel to Residential Country was brought to City Council. A public hearing was held as part of this process and this was the first opportunity to introduce the project and gather feedback from community members.

An engagement plan was developed to outline the specifics for each event and has been included in Appendix A. The broad objectives of this engagement program are to:

- Provide clear, transparent and meaningful public engagement opportunities;
- Ensure that Lobird Estates residents, nearby property owners and the public understand the proposed Highland Estates country residential development and answer any questions they may have; and
- Understand any potential concerns the public may have with the proposed development so they can be considered and integrated into the plans as appropriate.

Once the Master Plan has been finalized, it will go to City Council, along with the Zoning Amendment, for review and approval. This process will also include a public hearing, which will provide an additional opportunity for public comment.

2 Engagement Phase 1

2.1 Public engagement activities

A public open house was held in the lobby of the Radar Apartments in the Lobird Trailer Park on Monday March 10, 2025. Stantec staff were on site from 4:30 to 6:30 to share information about the proposed developed and gather feedback. At this meeting several boards containing information about the project where shared. This information package included the current Official Community Plan maps, the draft Highland Estates proposed lot layout, a development cross section and an overview of the development process. Meeting materials are included in Appendix B. Phase 1 events were held before the Master Plan Proposal was officially expected by the City.

Information about the meeting was shared using the following methods:

- A meeting invitation was posted on the Lobird Facebook page
- A meeting invitation was sent out to Lobird Mobile Home Park residents using their internal email list
- An ad was placed in the Yukon News on Wednesday March 5 and Friday March 7.

During the Open House, discussions were held with 12 people. These were largely local residents, but there was also a real estate agent and local politician in attendance.

2.2 What We Heard – Phase 1

The table below summarizes what we heard during the first open house. Beside each comment is a response including a description of the action taken where appropriate.

Comment	Response to Comment
Existing Development	
• Lobird Mobile Home Park should be cleaned up as part of this development. There are many old vehicles and other equipment that should be removed.	• Clean-up will take place as part of the redevelopment.
• Local water system is at capacity and no further homes should be added unless water flow is improved.	• No action as nothing is being added to the water system at this time.
Support for Development	
• Country residential is a good land use at this proposed location.	• No action
• More diverse housing types are needed in Whitehorse and country residential is desired by many residents.	• No action
• These lots will be in high demand as they are close to many services and amenities.	• No action
Concerns related to the development	
• Development above steep slopes could lead to erosion which could impact existing mobile homes	• Geotechnical analysis has been completed, house locations will be identified as part of the development plan.
• Concern about construction noise, dust, use of air brakes and hours of construction	• During construction, it will be the contractor who will share information about their plans, schedule and quiet hours.
• Should consider connections to existing trails; current residents use informal trails to access existing trails such as Quickie.	• Concept plan does not block access to informal network that connects.
• Concern about increased traffic through Lobird. The previous design, showing a separate access road was preferred by several residents.	• Road upgrades will need to be planned with traffic calming. Increased delineation of the road will lead to increased pedestrian safety.
• Consider traffic calming on the existing Lobird Road; traffic speeds are already too high.	• Road upgrades will need to be planned with traffic calming in mind.
• In new development, consider connections for trail users and bicycle commuters.	• Traffic volumes and speeds do not justify a separate bike lane or sidewalk within the development. • If Lobird Estates is redeveloped, pedestrian and bicycle infrastructure along Lobird Road should be considered.

• There are community safety issues within the Radar Apartments and existing Mobile Home Park.	• This is outside the scope of the proposed development project.
• Would like to see a buffer of trees between existing development and new development.	• Where possible, a buffer will be maintained.
• Residents see wildlife moving through the area. Development should consider impacts on wildlife habitat and corridors.	• Wildlife corridors will continue to exist in the area, outside the Development Parcel.

3 Engagement Phase 2

3.1 Public engagement activities Phase 2

A public open house was held in the lobby of the Radar Apartments in the Lobird Trailer Park on Wednesday May 7, 2025. Stantec staff were on site from 4:30 to 6:30 to share information about the proposed developed and gather feedback. At this meeting several boards containing information about the project where shared. This information package included the current Official Community Plan maps, the draft Highland Estates proposed lot layout, a development cross section and an overview of the development process. We also shared the results of the Phase 1 meeting and what actions were being taken as a result of the specific comments received. Additional meeting materials are included in Appendix C.

Information about the meeting was shared using the following methods:

- A meeting invitation was posted on the Lobird Facebook page
- A meeting invitation was sent out to Lobird Mobile Home Park residents using their internal email list
- An ad was placed in the Yukon News on Wednesday April 30, Friday May 2 and Wednesday May 7.

During the Open House, discussions were held with 4 local residents.

3.2 What We Heard – Phase 2

The table below summarizes what we heard during the second open house. Beside each comment is a response including a description of the action taken where appropriate.

Comment	Response to Comment
Support for Development	
• Participant wanted to know when the lots will be ready and when sales will open.	• No action
• Country residential lots are needed in Whitehorse and this is what the market needs.	• No action

Concerns related to the development	
• Concern about construction noise, dust, use of air brakes and hours of construction	• During construction, it will be the contractor who will share information about their plans, schedule and quiet hours.

3.3 Outreach activities – Phase 2

Outreach – Local First Nations

On April 8, 2025, the Highland Estates project team sent an email to planning representatives at Kwanlin Dün First Nation. This email introduced the project, shared the draft Concept Plan and offered to meet to discuss this project. Representatives from the Heritage, Lands and Resources Department at Kwanlin Dün First Nation stated that they do not wish to meet about this project at this time, but would appreciate updates as the plan progresses, and at key stages of the plan development.

On April 8, 2025, the Highland Estates project team sent an email to planning representatives at Ta'an Kwäch'än Council. On May 27, 2025, a second email was sent. No response was received to either email.

Outreach – Yukon Government Land Development Branch

The Highland Estates team reached out to staff from Yukon Government's Land Development Branch to share information and offer to meet to discuss this project further. A meeting was held with representatives from this branch on April 15, 2025.

The table below summarizes what we heard during the meeting with Land Development Branch. Beside each comment is a response including a description of the action taken where appropriate.

Comment	Response to Comment
South Growth Area	
• YG is currently undertaking the feasibility work for the South Growth Area. This includes geotechnical and heritage assessments. They are also looking to identify the developable area. They don't have detailed information at this point, but will have more to share later in 2025.	• No action.
• Potential access to the South Growth Area is being studied now, with potential access routes off either Hamilton Boulevard and McLean Lake Road. This study is being done by Greenwood Engineering.	• No action.

• Planning for this area is a long-term project and there is a still uncertainty related to feasibility, the developable area and timelines.	• No action.
• YG might be interested in integrating the rest of the lot and existing Mobile Home Park into the planning and development of the South Growth Area. • They will reach out to the owners of Lobird Estates later this year to set up a meeting to discuss the long-term development of this area.	• No action.
Plans for Highland Estates	
• YG is pleased to see the road connections going north and south into the South Growth Area.	• No action
• For YG, their preference would be to have the main north-south road designed to City Standards so that it could be taken over by the City in the future and connected to future roads. A private road might make it more complicated to integrate into a larger future development.	• Width and design of this road is being considered by the design team.
• If the main north-south road is connected to the South Growth Area in the future, the other access through Lobird Mobile Home Park might not be needed.	• No action
• YG suggested that the lots on the western edge of the development could be subdivided in the future and that the western half of these lots could be connected to service, once they have been developed.	• Could be considered in the future.
• YG is generally supportive of this development, especially if it can be connected to future development.	• No action

4 Engagement Phases 3

4.1 Public engagement activities Phase 3

A public open house was held in the lobby of the Radar Apartments in the Lobird Trailer Park on Tuesday May 26, 2026. Stantec staff were on site from 4:30 to 6:30 to share information about the proposed developed and gather feedback. At this meeting several boards containing information about the project where shared. This information package included the current Concept Plan, a development cross section and an overview of the development process. We also shared the results of the Phase 1 meeting and what actions were being taken as a result of the specific comments received. Additional meeting materials are included in Appendix C.

Information about the meeting was shared using the following methods:

- A meeting invitation was posted on the Lobird Facebook page
- A meeting invitation was sent out to Lobird Mobile Home Park residents using their internal email list
- An ad was placed in the Yukon News on Friday May 15, Wednesday May 20, and Friday May 22, 2026.

During the Open House, discussions were held with 9 local residents.

4.2 What We Heard – Phase 3

The table below summarizes what we heard during the third open house. Beside each comment is a response including a description of the action taken where appropriate.

Comment	Response to Comment
Existing Development	
• Need to figure out how water delivery will work – currently uses one of the lots	• No action as nothing is being added to the water system at this time.
• Existing wells have lots of water; lagoons work very well	
• Lots on the east have good gravel for septic; others may need alternative systems (e.g., mound)	
• Between 2–4 trucks per day currently used for water delivery	
• Request for city water servicing	
• Concern about well connectivity (two connected wells drawing from same source)	

• Existing road will need to be improved	• Road upgrades will need to be planned.
• Signage to identify “ponds” as lagoon	• Consider as part of new development
Support for Development	
• Very positive feedback, interest in more country residential lots	• No action
• This will help address the housing shortage in Whitehorse	• No action
Concerns related to the development	
• Would like a buffer of trees along the east boundary of lots	• Where possible, a buffer will be maintained.
• Want to see the area cleaned up, especially near the road	• Clean-up will take place as part of the redevelopment.
• Questions about what will happen with surrounding Suth Growth Area (future development).	• This is outside the scope of the proposed development project.
• Be sure to preserve trail access.	• Concept plan does not block access to informal trail network that connects.

4.3 Outreach activities – Phase 3

Outreach – Local First Nations

On May 13, 2026, the Highland Estates project team sent an email to planning representatives at Kwanlin Dün First Nation. A follow up phone call was held with staff. More information was provided during this call, but no specific concerns about this project were shared.

5 Engagement Phases 4

5.1 Public engagement activities Phase 4

A public open house was held in the lobby of the Radar Apartments in the Lobird Trailer Park on Wednesday August 5, 2026. Stantec staff were on site from 4:30 to 6:30 to share information about the Final Master Plan and gather feedback. At this meeting several boards containing information about the project where shared. This information package included the final Master Plan, a development cross section and an overview of the engagement to date. We also shared the results of the Phase 1 meeting and what actions were being taken as a result of the specific comments received. Additional meeting materials are included in Appendix D.

Information about the meeting was shared using the following methods:

- A meeting invitation was posted on the Lobird Facebook page
- A meeting invitation was sent out to Lobird Mobile Home Park residents using their internal email list
- An ad was placed in the Yukon News on Friday July 24 and Friday July 31, 2026.

5.2 What We Heard – Phase 4

The table below summarizes what we heard during the Phase 4 open house. Beside each comment is a response including a description of the action taken where appropriate.

During the Open House, discussions were held with 4 local residents.

Comment	Response to Comment
Existing Development	
• Concern that water and septic system are at capacity and should not be added to.	• New lots at Highland Estates will be unserviced, and not additional units will be added to water and septic system.
Support for Development	
• Positive feedback. This type of lot is desired in the community.	• No action.
Questions related to the development	
• Participants want to know how much lots will cost and when they will be ready for sale.	• No action.
Concerns related to the development	
• Concern that lots at the north end of the development will be difficult to develop due to bedrock.	• Additional assessment may be required during detailed design and if suitable coarse-grained receiving soils are not present or not adequate, septic holding tanks or raised bed systems may be required. • Drinking water wells will not be developed as lots will be on water delivery.

5.3 Outreach activities – Phase 4

Outreach – Kwanlin Dün First Nation

On July 28, 2026, the Highland Estates project team sent an email to planning representatives at Kwanlin Dün First Nation. Stantec spoke with representatives from Kwanlin Dün First Nation on Aug 10, 2026. First Nation staff shared that they would respond to the City with a formal response.

Outreach – Ta’an Kwäch’än Council

On July 28, 2026, the Highland Estates project team sent an email to planning representatives at Ta’an Kwäch’än Council. A reply received on July 28, 206 stated that the file would be reviewed. A response was received on August 11 stating that Ta’an Kwäch’än Council has no issues with this proposed development.

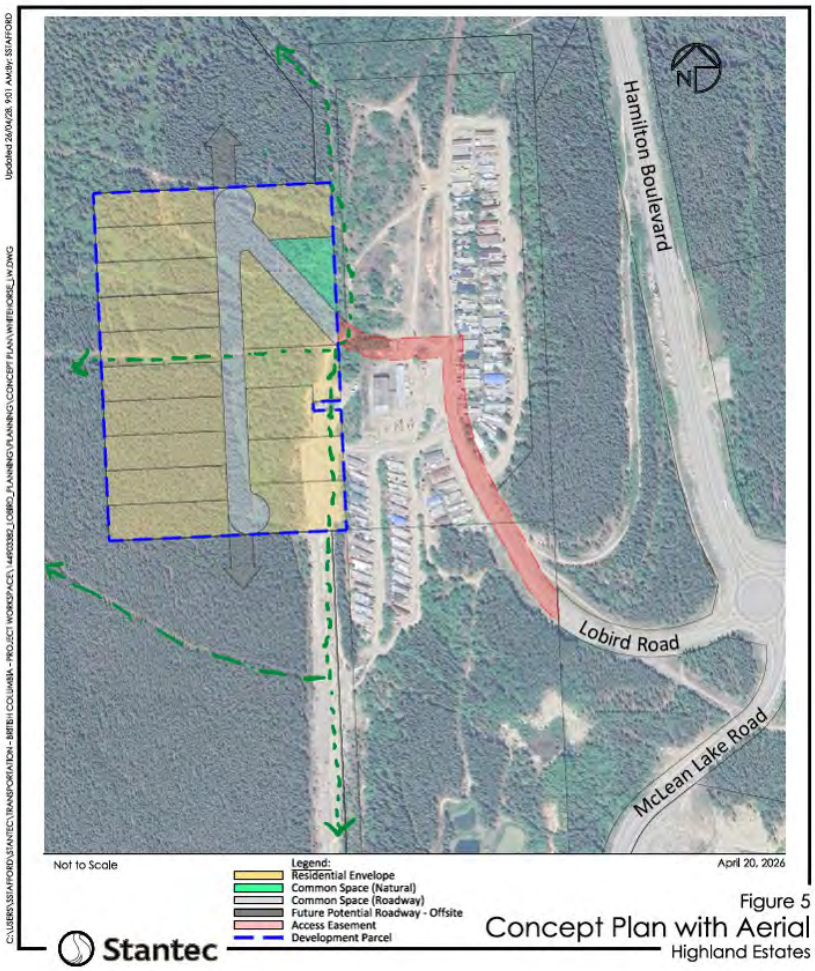
Outreach – Yukon Government Land Development Branch

The Highland Estates team reached out to staff from Yukon Government's Land Development Branch to share information and offer to meet to discuss this project further. A meeting was held with representatives from this branch on August 4, 2026. The following comments were provided in writing after the meeting.

Land Development Branch Comment	Response
• **South Growth Area process:** is underway and is currently confirming the planning boundary and high-level feasibility and planning considerations (to be addressed in subsequent Master Planning). More detailed input is anticipated to be available through that process in the late fall 2026 (e.g., during re-zoning process for this development). • Land Development Branch would be interested in meeting with the proponent to discuss this and other future development plans, and potential for alignment with ongoing work in the SGA.	• Will connect Land Development Branch and Lobird property owner in late fall 2026.
• **Roads:** Provision for future potential roadway connections to areas within the SGA is generally supported.	• No action
• **Trail Connections:** In line with current and likely future use conditions, the plan would benefit from the inclusion of dedicated greenspace trail connections to convey mixed-use trail users to and from Adit Lane (see green hashed lines in the sketch below showing potential routing to maintain current trail connections). o Unclear in the plan if the public use dedication would be used to host trails / re-routes. o Perimeter trails are becoming a key part of the recreation planning and wildfire mitigation strategy for new developments, so defining the route could have future benefits for integrating these elements across all developments in this area. o Potential trail alignment is shown in the figure below.	• Trail alignment will be considered during detailed design, and will required communication and collaboration with Kwanlin Dün First Nation. • As part of the development process and subdivision, a total of 3.90 ha of Public Use Land will be dedicated. The Developer will work with the City to allocate these lands based on future needs. Public Use Land can be used for formal/informal open space, parks, and trails.
• **Section 3.2:** Add that in 2023, the current OCP was adopted which provided land use direction for the South Growth Areas as a primarily urban serviced neighbourhood and to include it within the City's Urban Containment Boundary. Also change "Throughout the next few years, work will include:" to "Since the MOU was signed feasibility work has been underway and includes:"	• Change will be made in the final version to reflect this comment.

• **Figure 6 Zoning:** The triangular parcel near the start of the new development shows as zoned Residential – RC2. Should this not be PR?	• The triangular open space with remain part of the Highland Estates lot. The entire lot will be zoned RC2.
• **Figure 7 Public Land Use:** Should the triangular parcel be identified for public land use? Or will this be a private park space?	• The triangular open space with remain part of the Highland Estates lot. The entire lot will be zoned RC2.

Figure 1 - Trail alignment proposed by Land Development Branch



Appendix A Engagement Plan

4 Public Engagement Plan

4.1 Engagement Overview

According to the City of Whitehorse Master Plan policy, there should be three engagement opportunities during the Master Planning process; initial engagement during the project launch, concept engagement during the drafting of the land use concept and plan engagement during the drafting of the Master Plan.

This Engagement Plan section will set out goals of engagement, the specific activities planned and how input will be tracked, summarized and used.

In 2024, an OCP amendment to amend the designation of the Development Parcel to Residential Country was brought to City Council. A public hearing was held as part of this process and this was the initial engagement on this project, and was an opportunity to introduce the project and gather feedback from community members. Our engagement plan, outlined below sets out three public engagement sessions. Lastly, there will be a final public hearing as part of the zoning amendment process.

4.2 Engagement Goals

The broad objectives of this engagement project are to:

- Provide clear, transparent and meaningful public engagement opportunities;
- Ensure that Lobird Estates residents, nearby property owners and the public understand the proposed Highland Estates country residential development and answer any questions they may have; and
- Understand any potential concerns the public may have with the proposed developed so they can be considered and integrated into the concept plan as appropriate.

4.3 Stakeholder Review

The following table gives an overview of the various stakeholders and what their interest in this project might be.

Stakeholder	Interests	Proposed Engagement Tools
Primary Stakeholders – We will inform, consult, and involve primary stakeholders so that they are understand the development plans and can provide input that will help to guide the concept plan.		
Lobird Estates Residents	Interests may include: • Current and historical use of the Development Parcel. • Providing input on current use of the Development Parcel.	• Letter and poster invitation to an in-person meeting and an online presentation. • In-person open house to share draft concept plan earlier in the process.

	• Understanding and providing comments on the concepts. • Impacts related to construction.	• Online presentation to share final concept plan later in the process.
Yukon Government	• Land Development Branch will be interested in the future development of the South Growth Area • Environmental Health Services will be interested in the onsite water and septic systems.	• Share the draft concept plan and gather feedback before the Master Plan is finalized.
Local First Nations	• Ta'an Kwäch'än Council may have an interest in this development. • Kwanlin Dün First Nation owns land on three sides of this development and will have interest in this project and how is might related to their future development plan.	• Share the draft concept plan and gather feedback before the Master Plan is finalized.
Public Stakeholders – We will inform the public about the proposed development and opportunities to get more information and provide comments.		
General Public	• May have a general interest in this project. • May have concern about the proposed development or may have questions about the project.	• Public open house and online presentation.

4.4 Engagement Activities

The table below provides an overview of the proposed engagement activities for this Master Planning process.

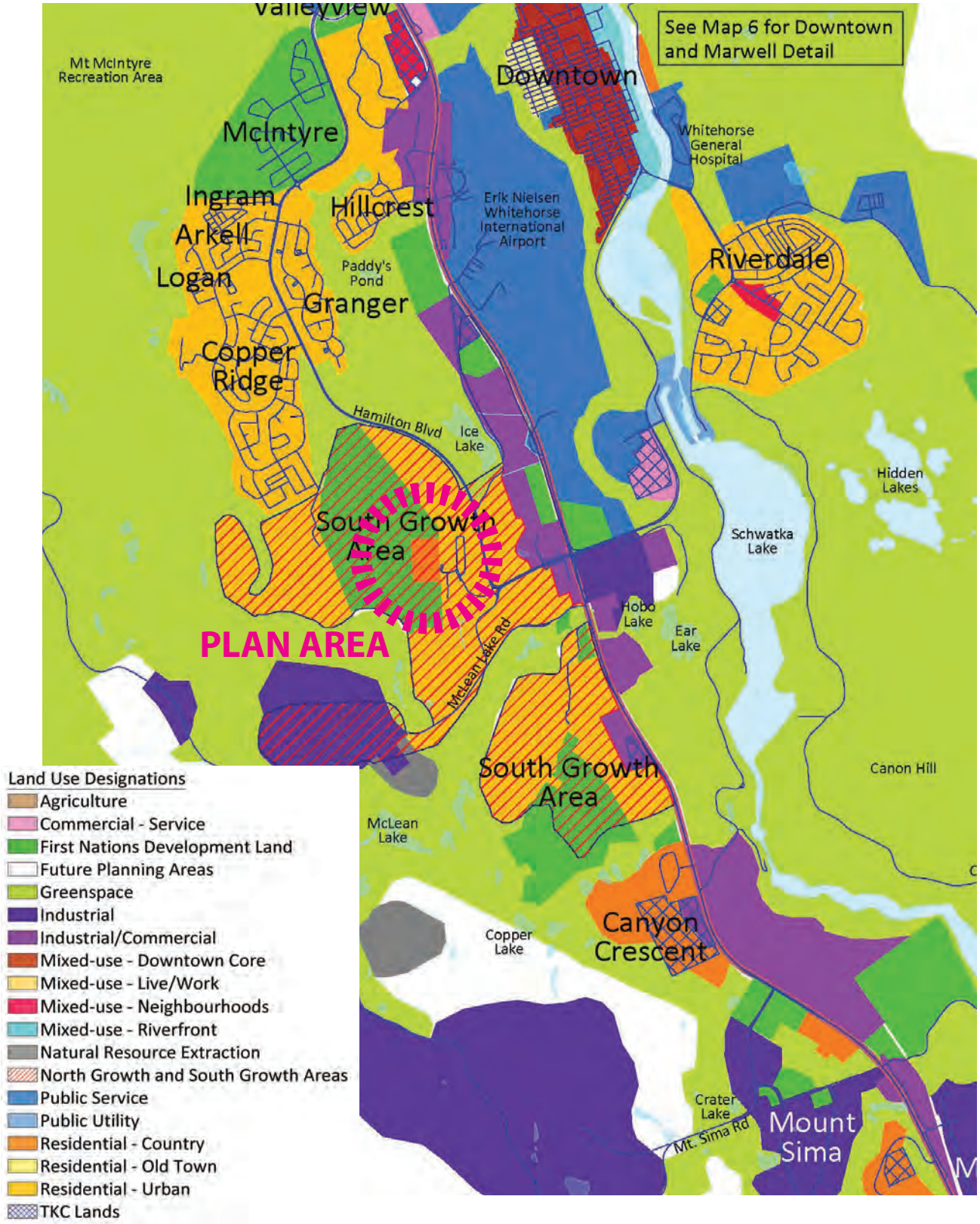
Engagement Activity	Description	Materials Needed	Schedule
Phase 1 – Initial Engagement			
• Public Open House	• An open house will be held at a suitable location as close to the Development Parcel as possible. • We will share preliminary information about the development project and gather feedback.	• Letter to Lobird residents. • Poster advertising the meeting. • Display board.	• March, 2025
Phase 2 – Concept Engagement			
• Stakeholder Outreach	• Prepare an information package including the draft concept plan and an overview of the project to share with stakeholders. • Offer to meet one-on-one with YG departments and First Nations.	• Introductory letter and information package.	• April - May, 2025

• Public Open House	• An open house will be held at a suitable location as close to the Development Parcel as possible. • We will share the draft Concept Plan and gather feedback. • The feedback will be used to help refine the design of this new neighbourhood.	• Letter to Lobird residents. • Poster advertising the meeting. • Display board.	• April - May, 2025
Phase 3 – Plan Engagement			
• Online Presentation to share Master Plan	• Once the Concept Plan has been finalized, we will host an online line meeting to share this information with interested parties.	• Letter to Lobird residents. • Poster advertising the meeting. • Presentation. • Master Plan and information package.	• May, 2025

4.5 What We Heard Report

Input will be gathered during each engagement event, the in-person and on-line meeting, through in-person conversations, and through the online platform and a What We Heard Report will be prepared. This report will summarize qualitative and quantitative results and will organize the input by theme. This input will be used to finalize the detailed design and ensure impacts of construction are minimal.

Appendix B Phase 1 Meeting Materials

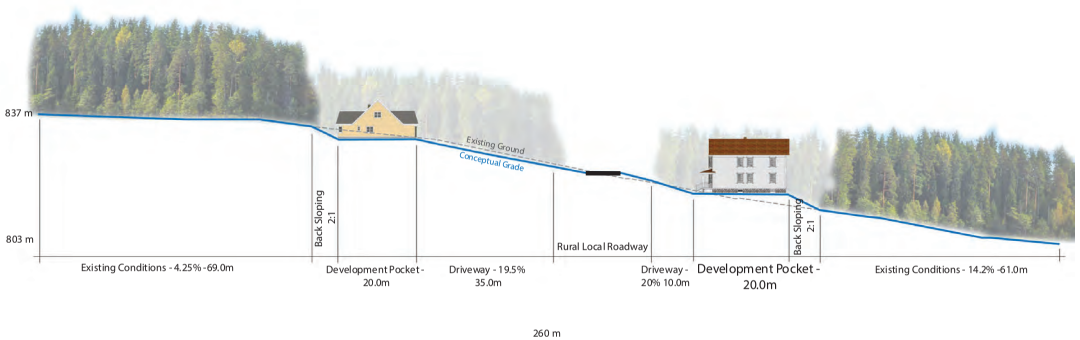


HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

OCP Land Use Designations

Open House #1

03/10/2025



Development Cross Section

HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

Concept Plan

Open House #1

03/10/2025

1 Official Community Plan Amendment

The Official Community Plan (OCP) is the highest level policy and planning document for a municipality. It sets an overall vision and direction and authorized by the Municipal Act. The OPC provides a framework of goals and policies that will guide the City's decisionmaking.

To support the potential development of Country Residential Lots in Highland Estates, a OCP amendment was required. This amendment was approved in Summer 2024

2 Master Plan

A Master Plan is required for all development of parcels over 1.5 hectares in size, prior to zoning amendments and/or subdivision. Private or public landowners prepare Master Plans to be approved by the City. The process includes the preparation of the Master Plan, Public Engagement, and City approval. Master Plan's provide regulatory requirements for the development of an area such as:

- Planning and development framework for proceeding with future zoning and Subdivision,
- Detailed engineering design;
- Development permit; and more.

3 Rezoning and Subdivision

Development within Whitehorse must be carried out in accordance with the City's Zoning Bylaw (2012-20). The City's Zoning Bylaw provides regulations for all development within Whitehorse. The Bylaw divides areas into zones and specifies items such allowable uses, required lot sizes, and height restrictions. Highland Estates will require a zoning amendment, resulting in a Public Hearing.

All subdivisions must be in compliance with the Whitehorse 2040 Official Community Plan and the City of Whitehorse Zoning Bylaw. A subdivision is required when a piece of land is divided into two or more real-estate entities able to obtain separate Land Title.

4 Engineering and Development Permit

A Development Permit authorizes development on land within the City of Whitehorse. "Development" means any new use, change of use, or change of intensity of use on any land within the City.

Development Permit affirms that the proposed development conforms to the applicable regulations of the Zoning Bylaw. This includes ensuring that the proposed use is permitted in the zone in which the site is located, that the site design incorporates all required elements such as landscaping, access and parking, walkways, waste areas, etc., and that the building(s) conforms to all development regulations such as setbacks, building height, site coverage, etc.

5 Construction

Once the development is approved, construction will begin. The Developer is responsible for all construction and will require inspections prior to any house construction.

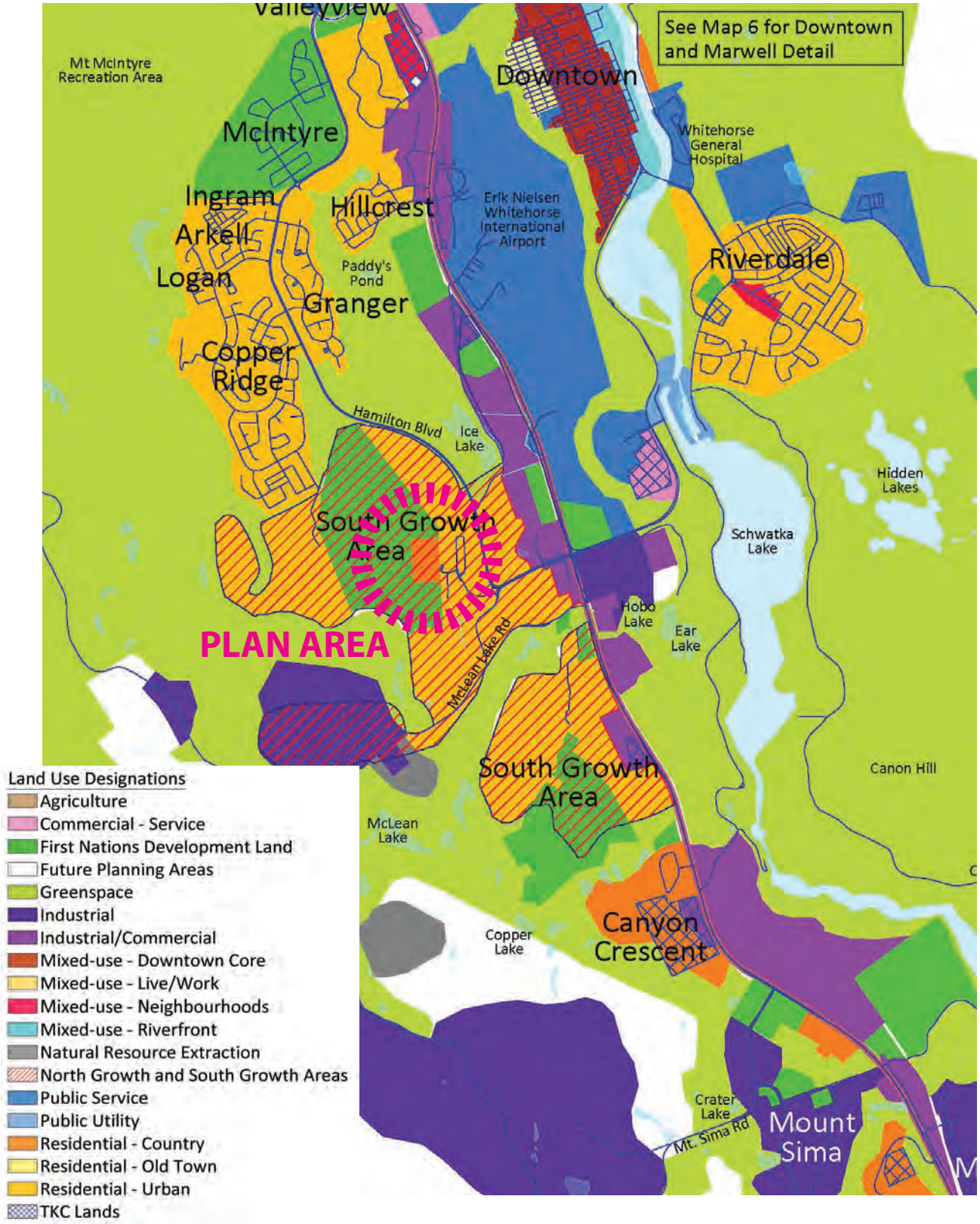
HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

Development Process

Open House #1

03/10/2025

Appendix C Phase 2 Meeting Materials

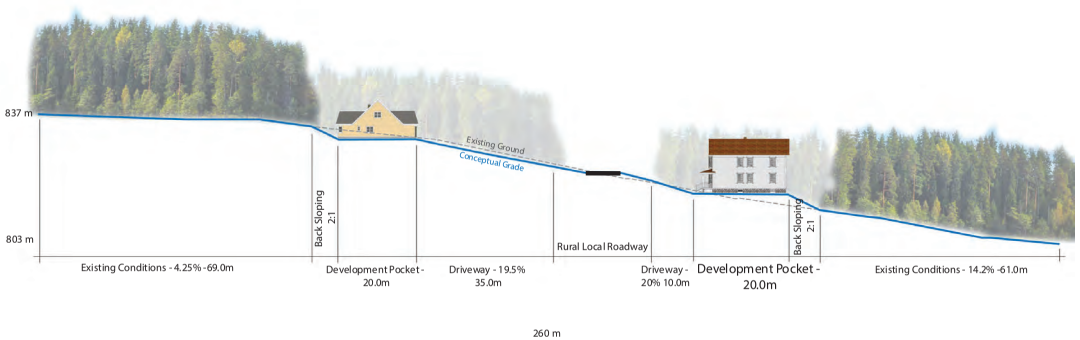


HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

OCP Land Use Designations

Open House #1

03/10/2025



Development Cross Section

HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

Concept Plan

Open House #1

03/10/2025

1 Official Community Plan Amendment

The Official Community Plan (OCP) is the highest level policy and planning document for a municipality. It sets an overall vision and direction and authorized by the Municipal Act. The OPC provides a framework of goals and policies that will guide the City's decisionmaking.

To support the potential development of Country Residential Lots in Highland Estates, a OCP amendment was required. This amendment was approved in Summer 2024

2 Master Plan

A Master Plan is required for all development of parcels over 1.5 hectares in size, prior to zoning amendments and/or subdivision. Private or public landowners prepare Master Plans to be approved by the City. The process includes the preparation of the Master Plan, Public Engagement, and City approval. Master Plan's provide regulatory requirements for the development of an area such as:

- Planning and development framework for proceeding with future zoning and Subdivision,
- Detailed engineering design;
- Development permit; and more.

3 Rezoning and Subdivision

Development within Whitehorse must be carried out in accordance with the City's Zoning Bylaw (2012-20). The City's Zoning Bylaw provides regulations for all development within Whitehorse. The Bylaw divides areas into zones and specifies items such allowable uses, required lot sizes, and height restrictions. Highland Estates will require a zoning amendment, resulting in a Public Hearing.

All subdivisions must be in compliance with the Whitehorse 2040 Official Community Plan and the City of Whitehorse Zoning Bylaw. A subdivision is required when a piece of land is divided into two or more real-estate entities able to obtain separate Land Title.

4 Engineering and Development Permit

A Development Permit authorizes development on land within the City of Whitehorse. "Development" means any new use, change of use, or change of intensity of use on any land within the City.

Development Permit affirms that the proposed development conforms to the applicable regulations of the Zoning Bylaw. This includes ensuring that the proposed use is permitted in the zone in which the site is located, that the site design incorporates all required elements such as landscaping, access and parking, walkways, waste areas, etc., and that the building(s) conforms to all development regulations such as setbacks, building height, site coverage, etc.

5 Construction

Once the development is approved, construction will begin. The Developer is responsible for all construction and will require inspections prior to any house construction.

HIGHLAND ESTATES PROPOSED COUNTRY RESIDENTIAL

Development Process

Open House #1

03/10/2025

What We Heard – Highland Estates

March 10, 2025 – Open House

Below is a summary of what we heard at the first open house. Beside each comment is a response including a description of the action to be taken, as appropriate.

Comment	Response to Comment
Existing Development	
Lobird Mobile Home Park should be cleaned up as part of this development. There are many old vehicles and other equipment that should be removed.	Clean-up will take place as part of the redevelopment.
Local water system is at capacity and no further homes should be added unless water flow is improved.	No action as nothing is being added to the water system at this time.
Support for Development	
Country residential is a good land use at the location.	No action
More diverse housing types are needed in the community and country residential lots are desired by many Whitehorse residents.	No action
This lots will be in high demand as they are close to many services and amenities.	No action

What We Heard – Highland Estates

March 10, 2025 – Open House

Below is a summary of what we heard at the first open house. Beside each comment is a response including a description of the action to be taken, as appropriate.

Comment	Response to Comment
Concerns related to the development	
Development above steep slopes could lead to erosion which could impact existing mobile homes and local environmental conditions.	Geotechnical analysis has been completed. For each lot, a development parcel will be identified as part of the plan.
Concern about construction noise, dust, use of air brakes and hours of construction	During construction, the contractor will share information about their plans, schedule and quiet hours.
Should consider connections to existing trails; current residents use informal trails to access existing trails such as Quickie.	Concept plan does not block access to informal trail network that connects to other trails.
Concern about increased traffic through Lobird. The previous design, showing a separate access road was preferred by several residents.	Road upgrades will need to be planned with traffic calming. Increased delineation of the road will be an improvement.
Consider traffic calming on the existing Lobird Road; traffic speeds are already too high.	Road upgrades will need to be planned with traffic calming.
In new development, consider connections for trail users and bicycle commuters.	Traffic volumes and speeds do not justify a separate bike lane or sidewalk within the development. If Lobird Estates is redeveloped, pedestrian and bicycle infrastructure along Lobird Road should be considered.
There are community safety issues within the Radar Apartments and existing Mobile Home Park.	This is outside the scope of the proposed development project.
Would like to see a buffer of trees between existing development and new development.	Where possible, a buffer will be maintained.
Residents see wildlife moving through the area. Development should consider impacts on wildlife habitat and corridors.	Wildlife corridors will continue to exist in the area, outside the Development Parcel.

Appendix D Phase 3 Meeting Materials

Highland Estates Master Plan – May 2026

Planning Process

The owners of Lobird Estates are working on a plan to add 16 new country residential lots, called Highland Estates, to the west of the existing mobile home park. Currently, work is being done to finalize a Master Plan, which will be presented to City Council under the Master Plan Policy.

An amendment to the Zoning Bylaw, along with subdivision and development permits, will also be required before any construction can proceed.

Engagement Process (to date)

There have already been two opportunities during this project to share information and gather input from residents.

- Public Engagement #1 – March 2025
- Public Engagement #2 – May 2025
- Public Engagement #3 – May 2026 **(today)**
- Public Engagement #4 – June - July 2026
- Public Hearing – Zoning Bylaw - TBD

PREVIOUS COMMENTS	RESPONSE TO COMMENT
Existing Development	
1. Lobird Mobile Home Park should be cleaned up as part of this development. There are many old vehicles and other equipment that should be removed.	• Some clean-up will take place as part of the redevelopment.
2. Local water system is at capacity and no further homes should be added unless water flow is improved.	• Highland Estate will have private water services.
Support for Development	
3. Country residential is a good land use at this proposed location.	• No action
4. More diverse housing types are needed in Whitehorse and country residential is desired by many residents.	• No action
5. These lots will be in high demand as they are close to many services and amenities.	• No action
Concerns related to the development	
6. Development above steep slopes could lead to erosion which could impact existing mobile homes	• Geotechnical analysis has been completed, house locations will be identified as part of the development plan and much of the trees will remain.
7. Concern about construction noise, dust, use of air brakes and hours of construction	• During construction, the developer will share information about their plans, schedule and quiet hours.
8. Should consider connections to existing trails; current residents use informal trails to access existing trails such as Quickie.	• Concept plan does not block access to informal network that connects.
9. Concern about increased traffic through Lobird. The previous design, showing a separate access road was preferred by several residents.	• Road upgrades will need to be planned with traffic calming. Increased delineation of the road will lead to increased pedestrian safety.
10. Consider traffic calming on the existing Lobird Road; traffic speeds are already too high.	• Traffic calming measures (if required) will be identified as part of detailed design.
11. In new development, consider connections for trail users and bicycle commuters.	• Traffic volumes and speeds do not justify a separate bike lane or sidewalk within the development. • If Lobird Estates is redeveloped, pedestrian and bicycle infrastructure along Lobird Road should be considered.
12. There are community safety issues within the Radar Apartments and existing Mobile Home Park.	• This is outside the scope of the proposed development project.
13. Would like to see a buffer of trees between existing development and new development.	• Where possible, Trees and a buffer will be maintained.
14. Residents see wildlife moving through the area. Development should consider impacts on wildlife habitat and corridors.	• Wildlife corridors will continue to exist in the area, outside the Development Parcel.

Highland Estates Master Plan – May 2026

Vision for Highland Estates

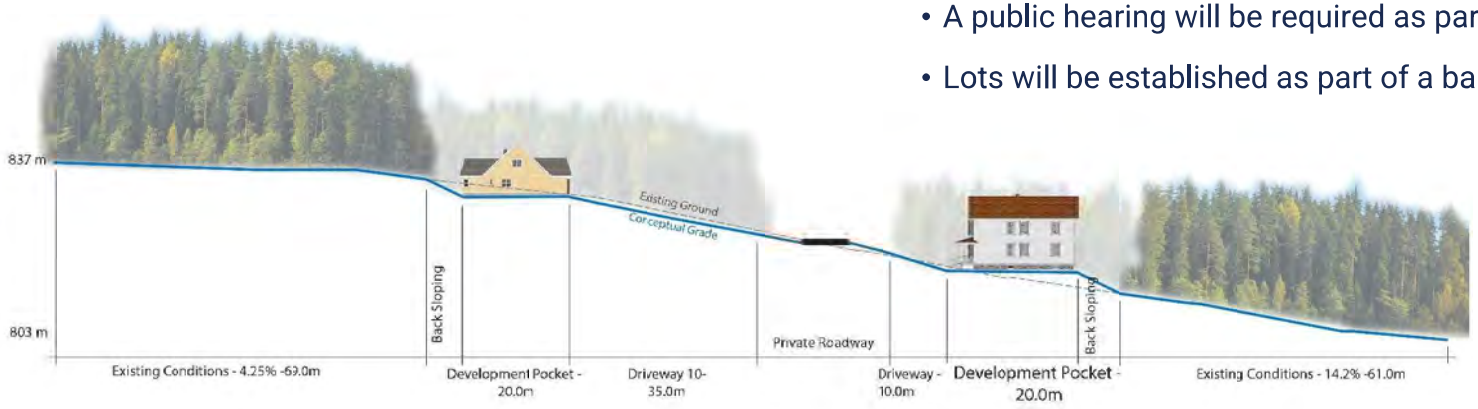
- To provide 16 new country residential parcels, a housing form that is limited in Whitehorse.
- To provide parcels in the City without the need for costly infrastructure and long-term maintenance, using a bare land condominium.
- To use lands with significant topographical constraints that would otherwise be challenging for traditional urban density development.
- Reduce the construction area to preserve the natural vegetation and existing grades.

Servicing Plan

- Parcels will be privately serviced, and the developer will be responsible for all related costs.
  - Water will be provided using private water tanks.
  - Each lot will have a private septic system or a pump-out sewage tank.
- Drainage ditches will be used to collect and direct surface water.
- Access will be provided via an extension to Lobird Road through Lobird Estates. The road will have a 7-meter-wide BST surface.

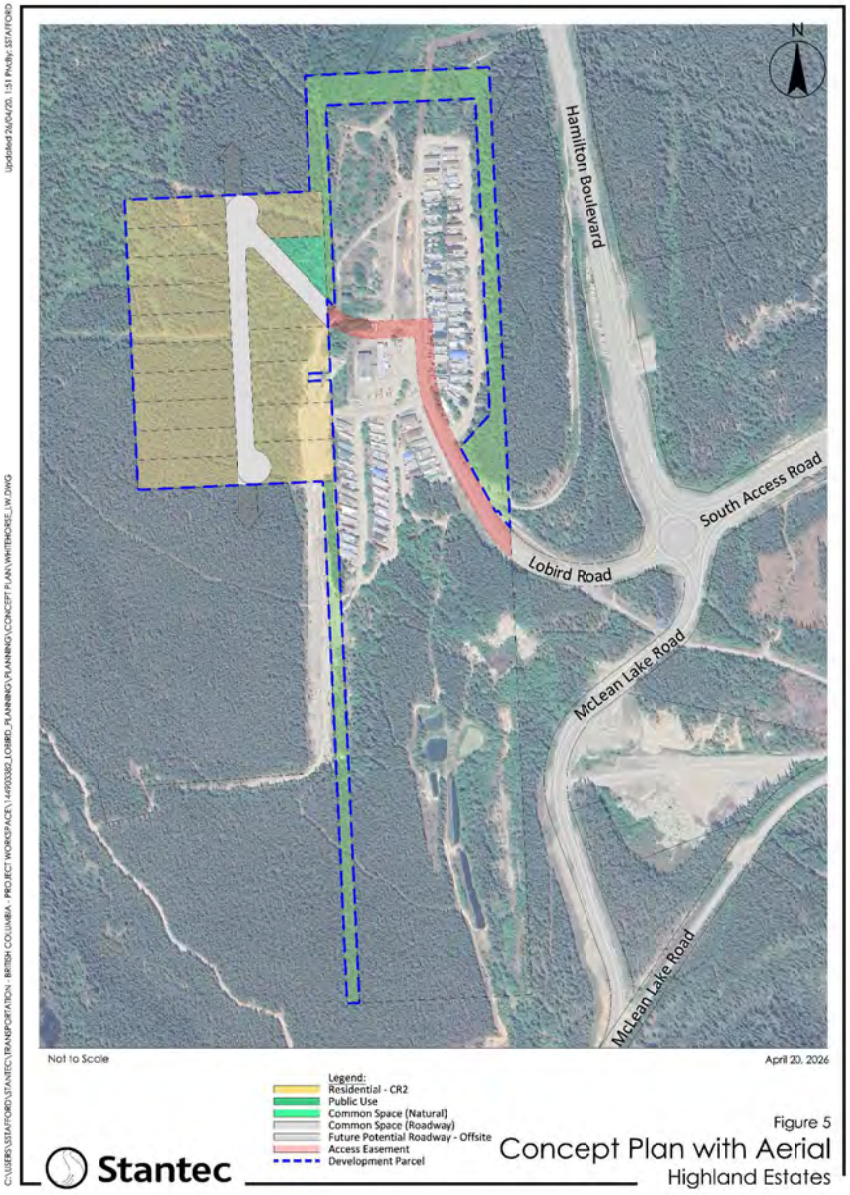
Proposed Zoning

- Proposed Zoning is RC 2 - Country Residential 2 – special modification.
- Lot are to be 0.5 hectares.
- Principal use will be single detached homes.
- A public hearing will be required as part of the Zoning Bylaw amendment.
- Lots will be established as part of a bare land condo.



Proposed Cross-Section

Highland Estates Master Plan – May 2026



Comments?

Appendix E Phase 4 Meeting Materials

Highland Estates Master Plan – August 2026

Planning Process

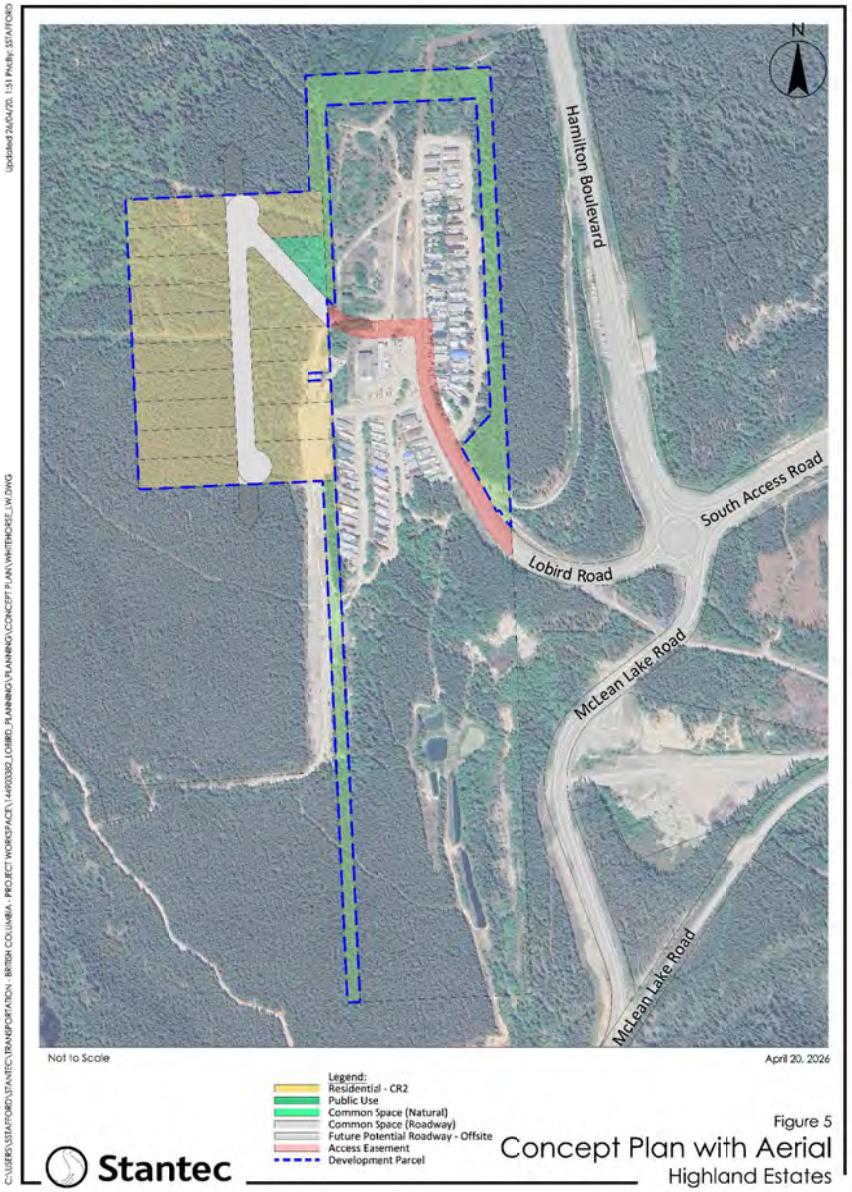
The owners of Lobird Estates are working on a plan to add 16 new country residential lots, called Highland Estates, to the west of the existing mobile home park. Currently, work is being done to finalize a Master Plan, which will be presented to City Council under the Master Plan Policy.

An amendment to the Zoning Bylaw, along with subdivision and development permits, will also be required before any construction can proceed.

Engagement Process

There have already been engagement opportunities during this project to share information and gather input from residents.

- Public Engagement #1 – March 2025 *(12 attendees)*
- Public Engagement #2 – May 2025 *(4 residents)*
- Public Engagement #3 – May 2026 *(9 residents)*
- Public Engagement #4 – Aug 2026 **(today)**
- Public Hearing – Zoning Bylaw – **TBD Fall 2026**



Highland Estates Master Plan – August 2026

Vision for Highland Estates

- To provide **16 new country residential parcels**, a housing form that is limited in Whitehorse.
- To provide parcels in the City without the need for costly infrastructure and long-term maintenance, using a bare land condominium.
- To use lands with significant topographical constraints that would otherwise be challenging for traditional urban density development.
- Reduce the construction area to preserve the natural vegetation and existing grades.

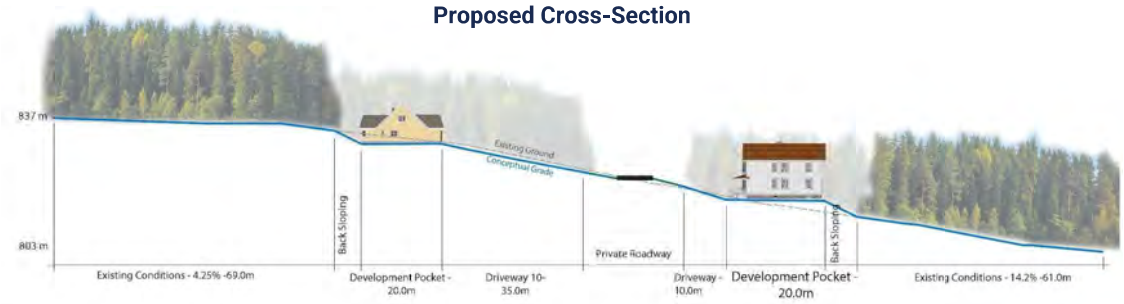
Proposed Zoning

- Proposed Zoning is **RC 2 - Country Residential 2** – special modification.
- Lot are to be **0.5 hectares.**
- Principal use will be **single detached homes.**
- A public hearing will be **required** as part of the Zoning Bylaw amendment.
- Lots will be established as part of a bare land condo.

Servicing Plan

- Parcels will be privately serviced, and the developer will be responsible for all related costs.
- Water will be provided using private water tanks.
- Each lot will have a private septic system or a pump-out sewage tank.
- Drainage ditches will be used to collect and direct surface water.
- Access will be provided via an extension to Lobird Road through Lobird Estates. The road will have a 7-meter-wide BST surface.

Proposed Cross-Section



Highland Estates Master Plan – August 2026

	PHASE	COMMENT	RESPONSE
	EXISTING DEVELOPMENT		
	Phase 1	1. Lobird Mobile Home Park should be cleaned up as part of this development. There are many old vehicles and other equipment that should be removed.	• Consider as part of new development
	Phase 1	2. Local water system is at capacity and no further homes should be added unless water flow is improved.	• Highland Estate will have private water services.
NEW	Phase 3	3. Need to figure out how water delivery will work – currently uses one of the lots	• Consider during detailed design
NEW	Phase 3	4. Existing wells have lots of water; lagoons work very well	• No action
NEW	Phase 3	5. Lots on the east have good gravel for septic; others may need alternative systems (e.g., mound)	• Will be up to property owners
NEW	Phase 3	6. Between 2–4 trucks per day currently used for water delivery	• No action
NEW	Phase 3	7. Request for city water servicing	• May be part of South Growth Area
NEW	Phase 3	8. Concern about well connectivity (two connected wells drawing from same source)	• No action
NEW	Phase 3	9. Existing road will need to be improved	• Consider during detailed design
NEW	Phase 3	10. Signage to identify “ponds” as lagoon	• Consider as part of new development
	SUPPORT		
	Phase 2	11. Country residential is a good land use at this proposed location.	
	Phase 2	12. More diverse housing types are needed in Whitehorse and country residential is desired by many residents.	
	Phase 2	13. These lots will be in high demand as they are close to many services and amenities.	
NEW	Phase 2 and 3	14. Very positive feedback, interest in more country residential lots	
NEW	Phase 3	15. This will help address the housing shortage in Whitehorse	

Highland Estates Master Plan – August 2026

PHASE	COMMENT	RESPONSE
CONCERNS		
Phase 1	16. Development above steep slopes could lead to erosion which could impact existing mobile homes	• Geotechnical analysis has been completed, house locations will be identified as part of the development plan and much of the trees will remain.
Phase 1 and 2	17. Concern about construction noise, dust, use of air brakes and hours of construction	• During construction, the developer will share information about their plans, schedule and quiet hours.
Phase 1	18. Should consider connections to existing trails; current residents use informal trails to access existing trails such as Quickie.	• Concept plan does not block access to informal network that connects.
Phase 1	19. Concern about increased traffic through Lobird. The previous design, showing a separate access road was preferred by several residents.	• Road upgrades will need to be planned with traffic calming. Increased delineation of the road will lead to increased pedestrian safety.
Phase 1	20. Consider traffic calming on the existing Lobird Road; traffic speeds are already too high.	• Traffic calming measures (if required) will be identified as part of detailed design.
Phase 1	21. In new development, consider connections for trail users and bicycle commuters.	• Traffic volumes and speeds do not justify a separate bike lane or sidewalk within the development. • If Lobird Estates is redeveloped, pedestrian and bicycle infrastructure along Lobird Road should be considered.
Phase 1	22. There are community safety issues within the Radar Apartments and existing Mobile Home Park.	• This is outside the scope of the proposed development project.
Phase 1	23. Would like to see a buffer of trees between existing development and new development.	• Where possible, Trees and a buffer will be maintained.
Phase 1	24. Residents see wildlife moving through the area. Development should consider impacts on wildlife habitat and corridors.	• Wildlife corridors will continue to exist in the area, outside the Development Parcel.
NEW Phase 3	25. Would like a buffer of trees along the east boundary of lots	• Where possible, a buffer will be maintained.
NEW Phase 3	26. Want to see the area cleaned up, especially near the road	• Clean-up will take place as part of the redevelopment.
NEW Phase 3	27. Questions about what will happen with surrounding Suth Growth Area (future development).	• This is outside the scope of the proposed development project.
NEW Phase 3	28. Be sure to preserve trail access.	• Concept plan does not block access to informal trail network that connects.
NEW Phase 3	29. Development above steep slopes could lead to erosion which could impact existing mobile homes	• Geotechnical analysis has been completed, house locations will be identified as part of the development plan and much of the trees will remain.

Highland Estates Master Plan – August 2026

What We Heard at a Glance

Water and Servicing

Private water tanks and septic systems support the local water system; capacity was a recurring concern.

Roads and Traffic

Upgrade Lobird Road and add traffic calming to keep speeds down and improve pedestrian safety.

Trees, Buffers and Wildlife

Retain tree buffers where possible and keep wildlife corridors outside the development parcel.

Site Clean-Up

Remove old vehicles and equipment as part of the redevelopment, especially near the road.

Trail Access

Keep informal trail connections open so residents can still reach the wider network.

Strong Support

Country residential is welcomed and is in high demand. Concerns were expressed over the housing shortage.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

Stantec Consulting Ltd.
202-107 Main Street
Whitehorse YT Y1A 2A7
stantec.com