



Ecole Whitehorse Elementary School

Site Assessment Final Report

2026.09.23



kobayashi + zedda

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1.0 EXECUTIVE SUMMARY

1.1 INTENT OF REPORT

The Government of Yukon is planning the construction of a new 7,041 square metre, three-storey French immersion school (École Whitehorse Elementary School) in Whitehorse. Kobayashi + Zedda Architects, along with a multi-disciplinary consultant team, conducted a desktop site assessment to objectively evaluate three candidate locations: Site A (Kopper King), Site B (Valleyview), and Site C (Downtown). The options were evaluated across architectural, functional, geotechnical, traffic, and civil criteria.

Site A - Kopper King

SCORE: 155 / 270 | COST: $87,205,900
This 24.9-hectare parcel is the largest option and offers the best integration with natural environments. It is located in a highway commercial zone, making it less preferred during public engagement. Due to severe topographical variations, only 4.3 hectares are buildable; however, this size allows for great flexibility for expansion and growth. It requires significant traffic upgrades (highway signalization) and provides limited active transportation connectivity.

Site B - Valleyview

SCORE: 179 / 270 | COST: $84,380,000
This 2.67-hectare site is the most financially economical option. It provides an excellent, balanced transit environment directly across from the Canada Games Centre. It is located in a suburban area with nearby natural surroundings supporting 21st century learning. Its unorthodox triangular shape, loose sandy soils, and potential liquefaction/sloping risks present moderate design and foundation challenges. However, its size still allows for meaningful expansion and its recreational and natural adjacencies are unmatched.

Site C - Downtown

SCORE: 133 / 270 | COST: $88,255,900
Located at the current school property, this 1.7-hectare site features the lowest technical evaluation score and highest cost. It is the most urban site of the three options, but furthest from the highest growth subdivisions. It offers superior pedestrian grid access and immediate utility compliance but is tightly constrained with minimal staging area. Expansion would be possible, but with limited landscaping, playground, or outdoor space.

Please note that the engineering content in the body of this report has been summarized from engineering reports. The full engineering reports have been included in the Appendix.

2.0 INTRODUCTION

2.1 PURPOSE OF STUDY

The Government of Yukon is preparing to design and construct a new French immersion school in Whitehorse, the École Whitehorse Elementary School (EWES). Kobayashi + Zedda Architects Ltd (KZA) was retained by Property Management Division of Yukon Government in March 2025 to compare three potential building sites for the proposed EWES.

The purpose of this study is to provide an objective analysis of all three sites to provide sufficient information through which management at the Government of Yukon can make an informed decision regarding the best possible location.

2.2 PROJECT PARAMETERS

Currently, the School is programmed to be 7,041 square metres in gross floor area. There are three major consumers of site area within the building programme:

- The building will likely consist of three storeys with an approximate building footprint at grade of 2,500 – 3,000 square metres;
- Due to the regional nature of the School, a significant portion of the property will be devoted to a well-designed and safe bus loading area, parent drop-off and teacher parking zone of approximately 3,000 m2;
- The final major grade component will be a playing field estimated to be 3,600 m2 using the current EWES playing field size as a guide.
- Additional area will also be needed to account for playgrounds, landscaping, and layout inefficiencies.

2.3 METHODOLOGY

A consultant team has been retained to undertake the analysis. The consultant team includes the following firms:

• Kobayashi + Zedda	Prime Consultant Architect CPTED	Client Liason, team coordination Architectural analysis, zoning Crime Preventions
• Tetra Tech	Geotechnical Environmental	Desktop soil analysis Desktop ESA Level 1
• Associated Engineering	Traffic Civil	Desktop traffic impact analysis Water, sewer, drainage
• Building Systems Consulting	Mechanical Electrical	Water, sewer, heating loads Power and communications
• BTY Group	Costing	Class D estimate
• Cornerstone Planning Group	Planners	Functional Analysis

In consultation with the Client Team, the consultant was asked to consider major criteria that would serve to amplify any marked differences as well as opportunities and shortcomings between the three potential sites. The evaluation criteria includes the following:

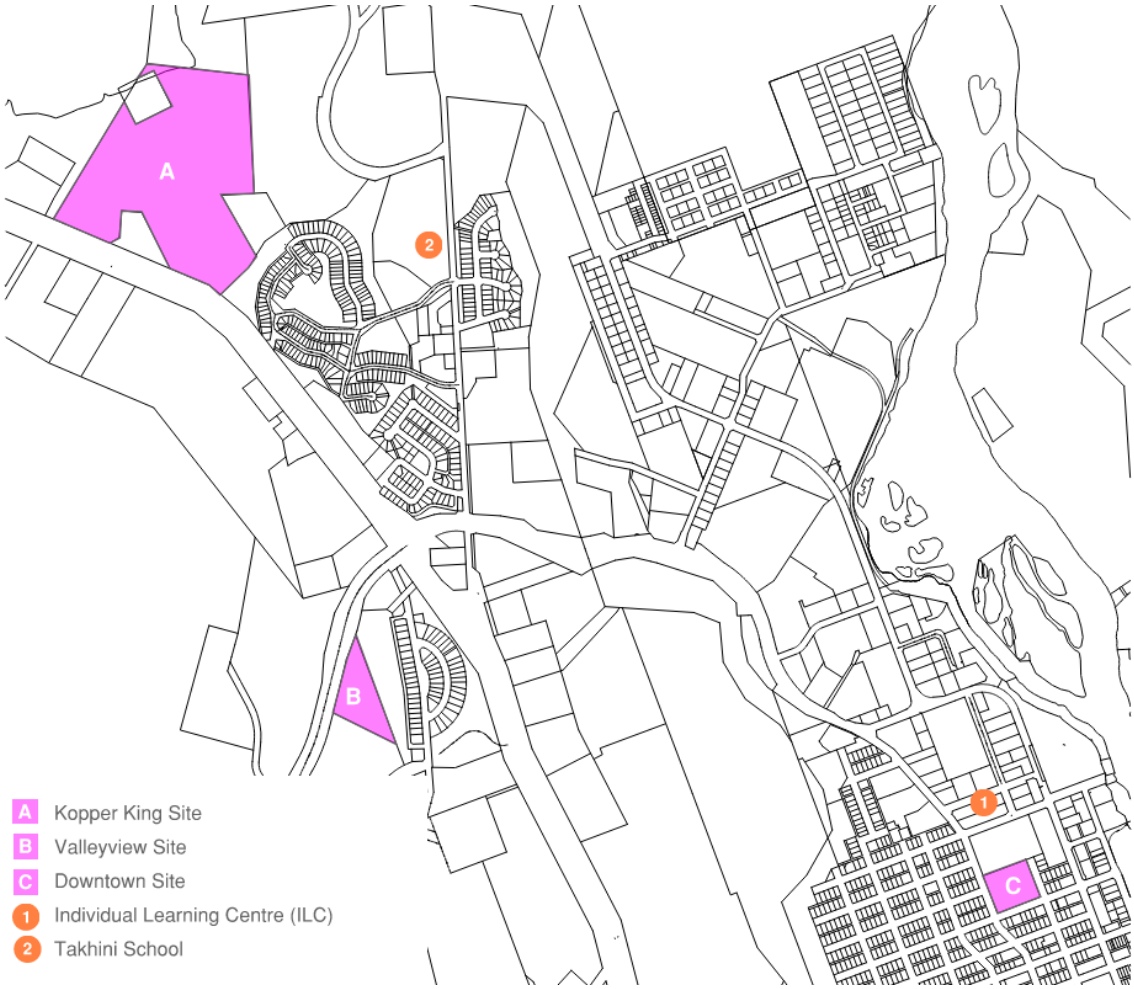
- Lot size/available space:
    - Construction and staging challenges
    - Constraints or opportunities for the school design
- Development Controls:
    - Official Plan, Master Plans, Zoning Bylaw
    - Setbacks, easements, right of ways
    - Land use compatibility
- Location/School Specific:
    - CPTED (Crime Prevention Through Environmental Design)
    - Safe pedestrian access
    - Neighbourhood impacts during construction
    - Green space availability
- Geotechnical Desktop:
    - Seismic risks
    - Geotechnical concerns
    - Contaminated soil or ground water
- Environmental Site Assessment Level 1 (ESA1) Desktop:
    - Heritage sites
    - Noise quality
    - Air quality
    - Animal habitats
    - Site proximity to hazards
- Civil:
    - Site drainage (consider impacts to outside play areas)
    - Proximity of existing infrastructure and drainage patterns
    - Identification of potential servicing constraints, challenges, and commentary on general overall feasibility.
    - Capacity review of existing infrastructure will be limited to review of any publicly available reports or analysis.
- Traffic:
    - Impacts to local traffic
    - Traffic separation - bus lanes, parent drop-off, one way traffic flows
    - Commentary on the surrounding road network, road classifications, and adjacent intersections
    - Connection opportunities to Whitehorse active transportation network (sidewalks and bikes)
    - Connection opportunities to Whitehorse transit
    - Opportunities for multiple site accesses
    - Multiple emergency accesses
    - Accessible drop-off zones
    - City bus accessibility

    - Potential for a need to upgrade intersections or lot access
- Utilities:
    - Existing utility corridors
    - Room within utility corridors for future upgrades (ex. future EV buses)
    - Do utility tie-ins impact design
    - Potential for a need to upgrade current infrastructure

2.4 SITE LOCATIONS

The three subject sites to be analyzed were selected by the Government of Yukon and provided to the consulting team. Due to the regional catchment area of the School, a geographically central location is desired with proximity to major arterial road networks. A secondary consideration would be proximity to alternative forms of transportation networks, residential neighbourhoods, greenspace and programme amenities. The current School site was also selected as part of the analysis.

The three subject sites can be characterized loosely as highway commercial (A), suburban (B) and urban (C) in nature. The three sites are shown on a single map below to provide a snapshot of their proximity, their size and their scale to each other.



Site A - Kopper King

Site	Legal Address	Street Address	Zone	Area (Ha)
A	Parcel: 8008448 LOT 435 GROUP 804	Alaska Highway	PE/FP/PG	24.9

Site A, Kopper King is a large, multi-faceted shaped lot fronting on the Alaska Highway. The parcel is the largest of the 3 sites. It is approximately 15 times larger than Downtown Site C. The terrain of Site A is highly variable, heavily treed with some wild areas including McIntyre Creek and the Beaver Pond. The site is well connected to nature trails, the nearby Millenium Trail and several gravel access roads.

Site B - Valleyview

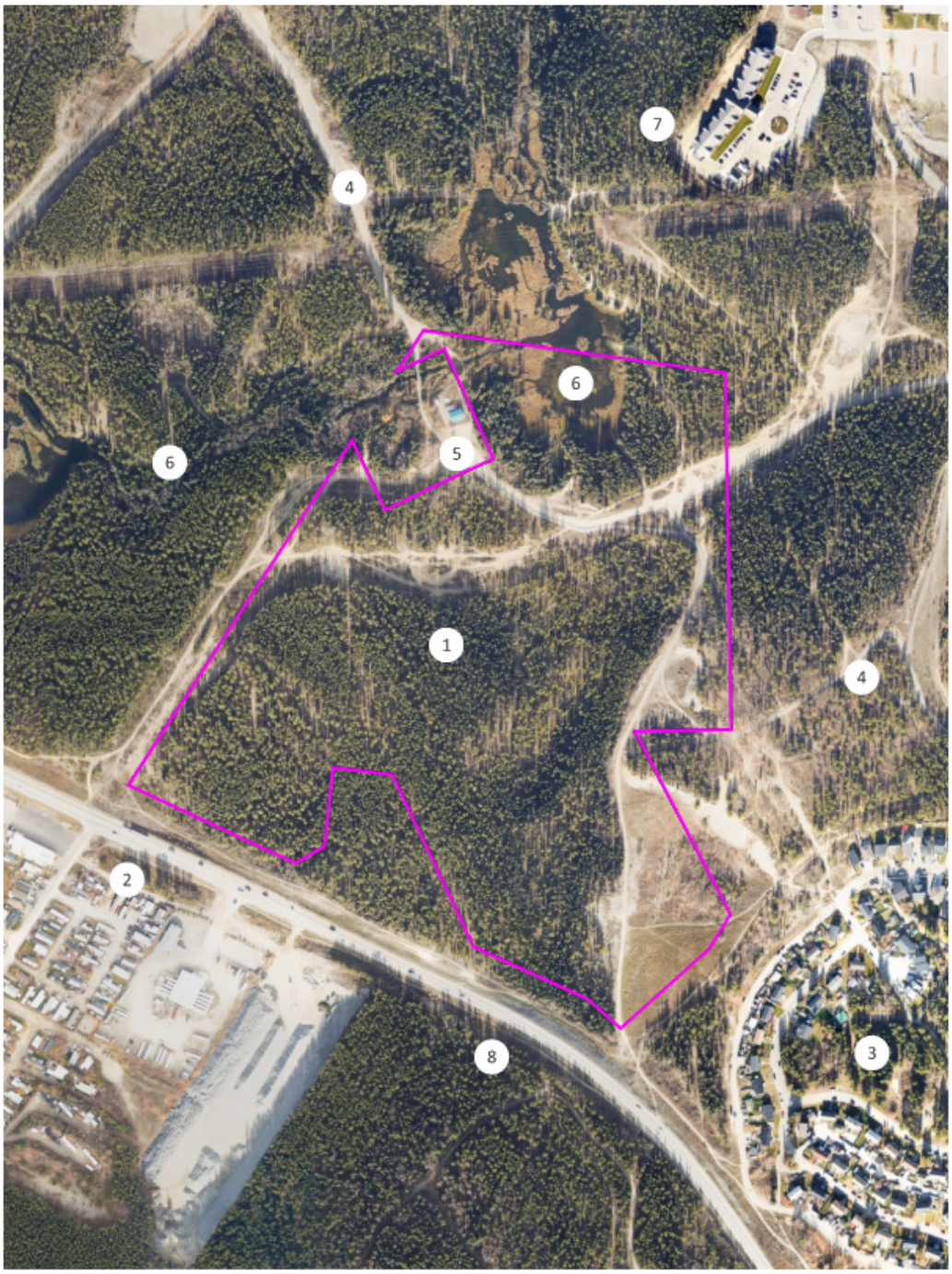
Site	Legal Address	Street Address	Zone	Area (Ha)
B	Unsurveyed parcel	Hamilton Boulevard	PG	2.67

Site B, Valleyview is a triangular-shaped lot fronting Hamilton Boulevard across from the Canada Games Centre. The parcel is just over 1.5 times larger than Downtown Site C. The site is unsurveyed and has proximity to the Valleyview residential area and the community playground.

Site C - Downtown

Site	Legal Address	Street Address	Zone	Area (Ha)
C	Parcel: 8009329 PARCEL A LOT 5 GROUP 5	4181 4th Avenue	PS	1.7

Site C Downtown is the current location of EWES on 4th Avenue at Black Street. 4th Avenue is one of the major arterial routes in the downtown area. The site context is urban. While traffic on the road is heavy, the speed is regulated and considered safe. The lot is the smallest of the sites under consideration, roughly 7% of the area of the Kopper King parcel.



EWES SITE ANALYSIS
KOPPER KING SITE AERIAL PHOTO NTS

1 LOT 435
2 KOPPER KING
3 TAKHINI NORTH NEIGHBOURHOOD
4 WALKING TRAILS
5 McINTYRE PUMP HOUSE
6 McINTYRE CREEK
7 YUKON UNIVERSITY RESIDENCE
8 ALASKA HIGHWAY



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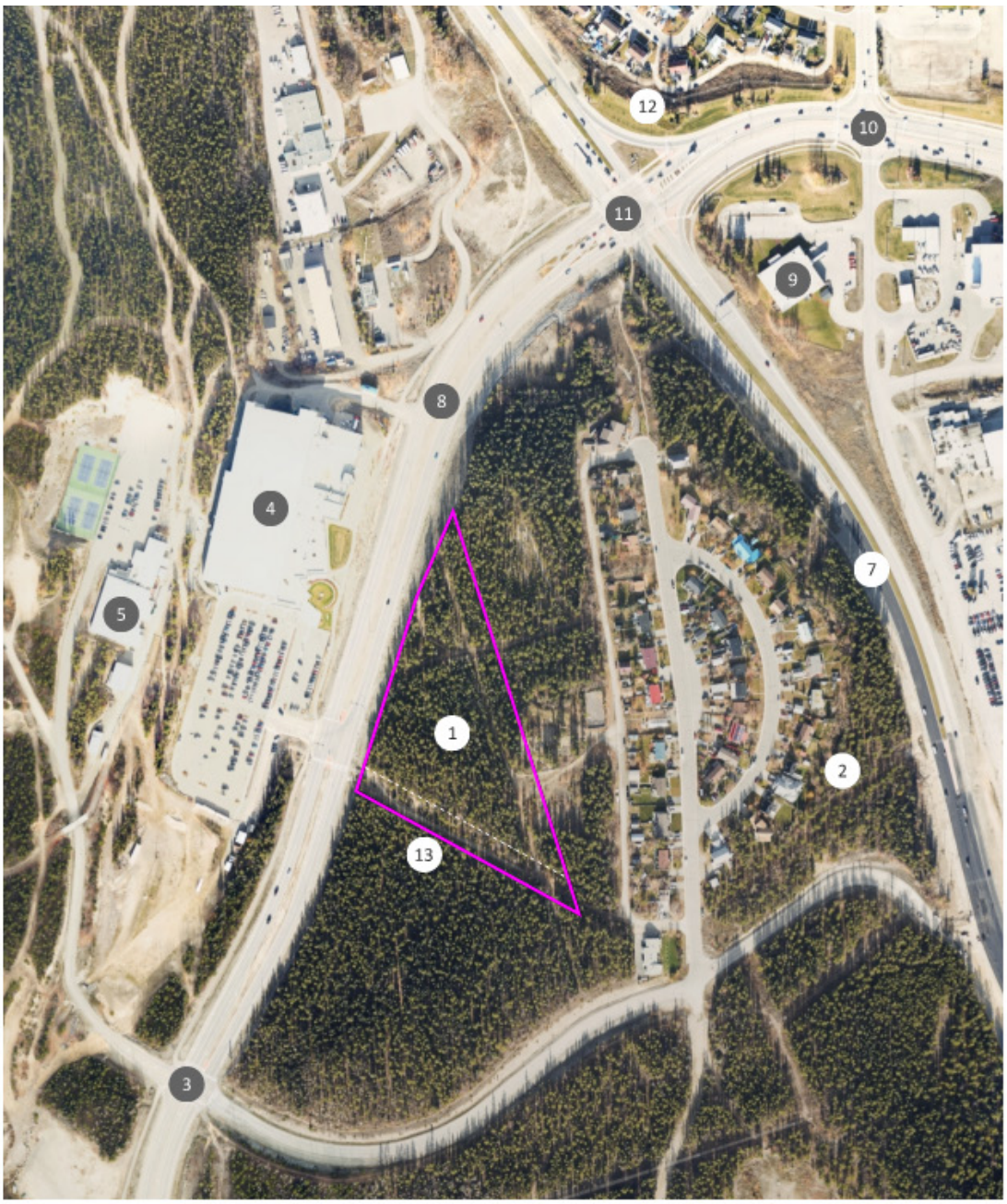
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EWES SITE ANALYSIS

VALLEYVIEW SITE AERIAL PHOTO NTS

1 UNSURVEYED LOT VALLEYVIEW
2 VALLEYVIEW NEIGHBOURHOOD
3 SUMANIK DRIVE INTERSECTION
4 CANADA GAMES CENTRE
5 MT McINTYRE RECREATION CENTRE
6 ALASKA HIGHWAY INTERSECTION
7 ALASKA HIGHWAY
8 HAMILTON BOULEVARD
9 CANADA POST
10 RANGE ROAD/TWO MILE HILL INTERSECTION
11 TWO MILE HILL/ALASKA HIGHWAY INTERSECTION
12 TAKHINI EAST NEIGHBOURHOOD
13 WATERLINE EASEMENT



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EWES SITE ANALYSIS
DOWNTOWN SITE AIR PHOTO NTS

1 ECOLE WHITEHORSE ELEMENTARY SCHOOL
2 4TH AVENUE
3 BLACK STREET
4 3RD AVENUE
5 WHITEHORSE MOTORS
6 WHITEHORSE EMERGENCY SHELTER
7 QWANLIN MALL
8 YUKON CENTRE MALL
9 NVD PLACE
10 NORTHLIGHT INNOVATION


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3.0 DEVELOPMENT CONTROL

3.1 OFFICIAL COMMUNITY PLAN 2040

Under the current 2040 Whitehorse Official Community Plan (OCP), both the Kopper King and Downtown sites are designated for use as a school site. Site B, Valleyview is designated as Greenspace and therefore an Official Plan amendment would be required to change its status.

3.2 MASTER PLANS

Under the City of Whitehorse Land Use Master Plan Policy (May 2024), a Master Plan is required for all development of parcels over 1.5 hectares in size before any zoning amendments can occur. These plans act as high-level guiding documents to ensure new areas develop in a logical, functional, and cost-effective manner.

Site C, the existing EWES site will not trigger a requirement for a Master Plan. Site A, Kopper King, will require a Master Plan while the remaining Site B, Valleyview falls under an existing Plan called the Valleyview South Master Plan 2024. An update of the 2024 Plan would be required.

3.3 CITY OF WHITEHORSE ZONING BYLAW 2024-57

The City of Whitehorse Zoning Bylaw indicates various zones for the three sites. These zoning designations include the following:

- PG (Public Greenbelt)
- FP (Future Planning)
- PS (Public Service)
- PE (Environmental Protection)

Only Zone PS (Public Service) permits the construction of a school. The Downtown site is the only site that is appropriately zoned for a school at the current time. Neither the Kopper King or Valleyview site are zoned appropriately and would require rezoning.

3.4 DEVELOPMENT REGULATIONS GENERAL

Official Plan amendments, Zoning Bylaw amendments and Master Plans are time-consuming processes. All amendments are subject to a public process and the final decision is at the discretion of City of Whitehorse Council. There is no guarantee of approval regardless of methodology or process.

Site A, Kopper King and Site B, Valleyview will need to undertake a public process that is estimated to add a full calendar year to the project schedule – with no guarantee of success.

Only Site C, Downtown, is fully approved to proceed at this current time.

The table below summarizing all applicable development regulations has been created by the City of Whitehorse.

	Site A - Kopper King	**Site B** - Valleyview	**Site C** - Downtown
Address/ Legal Description	LOT 435, GROUP 804, PLAN 52105 CLSR YT	Unsurveyed	4181 4th Avenue
Size (Approx.)	25.0 ha	2.4 ha	1.7 ha
OCP Designation	Public Service, Greenspace	Greenspace	Mixed-Use - Downtown Core
Approved Master Plan?	No	Yes – Valleyview South Master Plan	No
Zoning [1]	FP-Future Planning, PE-Environmental Protection, PG-Greenbelt	PG-Greenbelt	PS-Public Service
Notes	• This site partially overlaps with the Chasàn Chùa Territorial Park and the Yukon University Land Reserve. • Official Community Plan Public Service land use designation is appropriate for a school, but FP, PE, and PG zones are not and require an amendment. • As the site is more than 1.5 ha, a zoning amendment will trigger the requirement for a land use master plan (OCP Policy 13.22).	• In the Master Plan, the subject site is designated as Parks/Greenspace. This designation is not appropriate for a school. • Updates to the Master Plan would be required to change the designation and any other relevant aspects of the Master Plan (please review Master Plan to ensure all relevant aspects are considered).	• Official Community Plan land use designation and zoning are appropriate for a school; no amendments necessary and the requirement for a land use master plan is not triggered.
Regulatory Steps Required [2]	1. Apply for an OCP amendment if you intend to develop the school in the Greenspace OCP land use designation. 2. Prepare a master plan. 3. Apply for a zoning amendment. 4. Submit a subdivision application (if you intend to subdivide the lot). 5. Apply for a development permit.	1. Apply for an OCP amendment. 2. Apply for an update to the Valleyview South Master Plan. 3. Apply for a zoning amendment. 4. Apply for subdivision approval. 5. Apply for a development permit.	1. Apply for a development permit to build a school and demolish the existing school.

[1] A new zoning bylaw is anticipated to be adopted soon. Subscribe to the Engage Whitehorse project webpage for updates.

[2] Some of these steps may be done jointly or in parallel.

3.5 SCHEDULE

As noted above, required amendments for Site A Kopper King and Site B Valleyview would require an additional approvals from the City of Whitehorse with no guarantee of achieving the desired outcomes. While Site C Downtown, requires no amendments before proceeding to design, the Downtown project will require a longer, phased construction schedule to account for demolition of the existing School once the new School is occupied.

A comparative schedule breakdown is shown in the table below. The proposed occupancy dates are highlighted in green below. It should be noted that the early occupation date for the Downtown location would be followed by a period of hazardous materials remediation, demolition, disruption, and delayed landscaping.

The design schedule for the Kopper King and Valleyview sites would run concurrently with Municipal approvals.

Project Phase	Kopper King	Valleyview	Downtown
Final Site Assessment Report	2026/08	2026/08	2026/08
Final Site Selection by YG	2026/10	2026/10	2026/10
Official Community Plan amended *	2027/04	2027/04	
Master Plan completion	2027/04	2027/04	
Zoning Approval granted *	2027/08	2027/08	
Plan of Subdivision created *	2027/11	2027/11	
Phase 1 – Site Analysis Test Fit	2026/12 **	2026/12 **	2026/12
Phase 2 – Pre-Design	2027/03	2027/03	2027/03
Phase 3 – Conceptual Design Options	2027/05	2027/05	2027/05
Phase 4 - Schematic Design Complete	2027/08	2027/08	2027/08
Phase 5 – Detailed Design	2028/08	2028/08	2028/08
Phase 6 – Contractor Procurement	2028/11	2028/11	2028/11
Occupancy	**2031/06**	**2031/06**	**2031/06**
Hazardous Materials Removal			2031/09
Demolition Complete			2031/12
Landscaping/Seasonal Deficiencies	2031/10	2031/10	2032/10
Warranty	2032/06	2032/06	2032/06

* Amendments are subject to a public process with a final decision resting with Whitehorse City Council with no guarantee to proceed beyond this point. Some of the process may be completed concurrently.
** The design schedule, beginning with Phase 1 Test Fit, for the Kopper King and Valleyview sites would run concurrently with the Municipal Approvals Process with the inherent risk as explained above.

4.0 PLANNING ANALYSIS

4.1 LAND USE ANALYSIS

Site A - Kopper King

The site frontage exhibits a rural pretense, due to its adjacency to the Kopper King Highway commercial corridor, though it has geographic proximity to suburban areas of Porter Creek C, Takhini North and Yukon University.

The Site is sufficiently large to avoid most conflicts and incompatibilities with adjacent land uses. The highway commercial nature of the Site is compatible with the regional catchment of the School however the flip side of the School could create links with adjacent land uses should it be desired.

Yukon University has sought a secondary access route for emergencies since the early 90s. Efforts could be made to create this linkage to the Alaska Highway if deemed necessary.

Site B - Valleyview

The adjacent Canada Games Centre and Mt. Mac Rec Centre would provide excellent amenities that would complement the School's curriculum. The two facilities would be within walking distance thereby saving costly bus rental fees for each excursion. The existing Hamilton Boulevard T-intersection along the lot frontage is signalled and would allow safe crossings for students at no additional cost.

The nearby Valleyview community has expressed concerns about the loss of greenbelt area to a new School.

Site C - Downtown

The north side of the lot is bounded by the rear, featureless, shipping façade of a regional shopping centre and is among several nearby properties which are considered discordant with the principles of 21st Century school design. While there are many amenities nearby Site C, few are complementary to the programming needs of the School.

4.2 CONSTRAINTS & OPPORTUNITIES FOR SCHOOL DESIGN

Site A - Kopper King

Due to the undulating profile of the site – the difference between low point and high point being 37 metres – much of the lot is considered to be non-viable for school construction. The buildable area of the lot is restricted to the southeast portion of the lot and the rough area is estimated to be 4.3 hectares, a fraction of the total 24.9 hectare site.

The overall area of the site still will allow for generous contractor staging and lay-down areas during construction. Minimal disruption can be expected by neighbouring properties. The natural and wild features of the site would present many opportunities for 21st Century school design as well as the everyday curriculum.

Additional security precautions should be anticipated during construction due to the rural aspects of the property. Additional precautions should also be taken to ensure the safe separation of students from the high-speed nature of the adjacent Alaksa Highway corridor.

Site B - Valleyview

The site is relatively flat and fully treed. The grade slopes gently toward the Valleyview community to the east. An adjacent linear property between Site B and the Valleyview community, (Parcel: 8034087 LOT 66) is 3.59 hectares in size and acts as a buffer between the two areas.

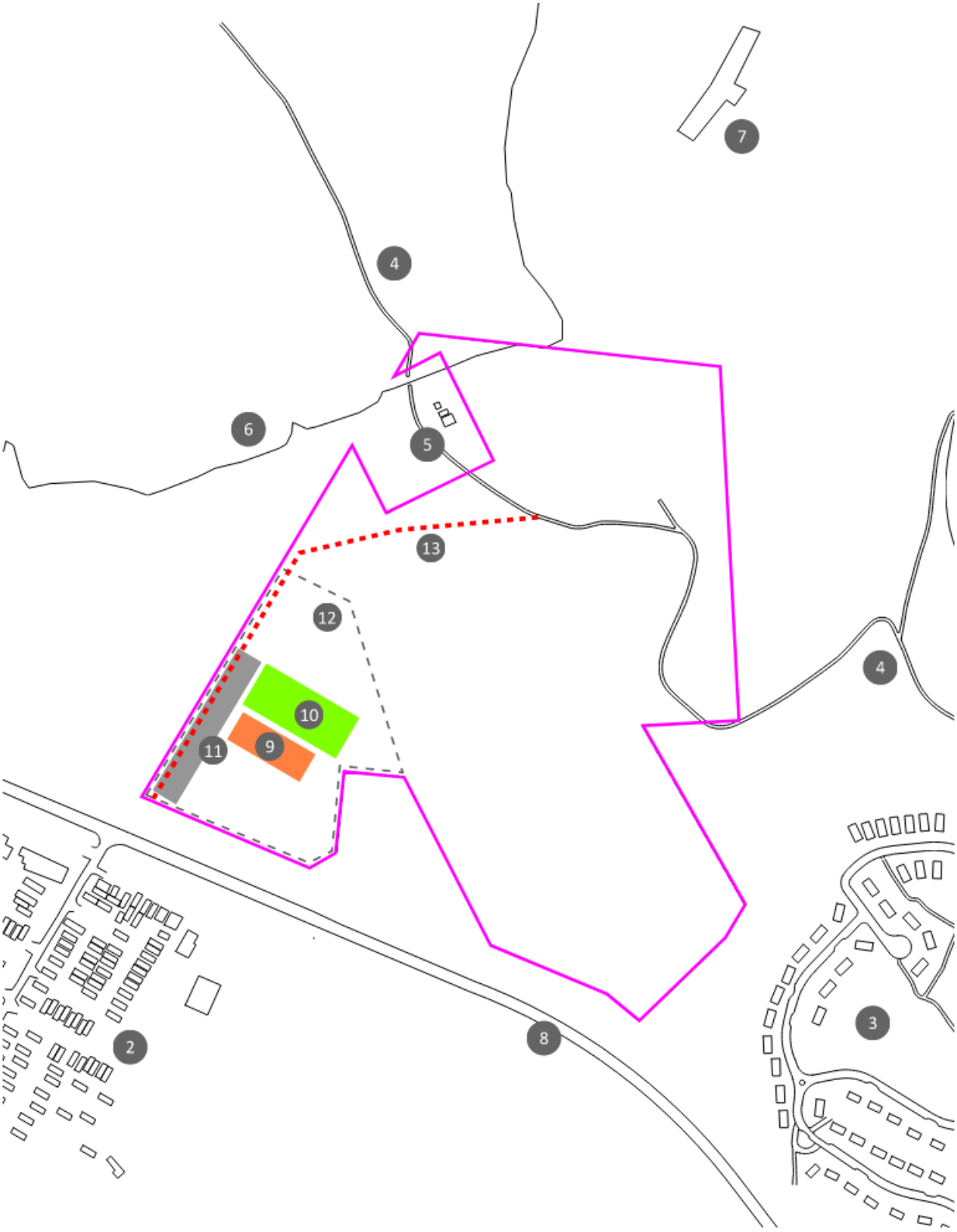
The overall area of the site will still allow for sufficient contractor staging and lay-down areas during construction. Minimal disruption can be expected by neighbouring properties during construction though some noisy work could potentially impose on the Valleyview subdivision at various stages.

The triangular shape is unorthodox for construction and will present some challenges to the design team to make efficient use of building footprint, road network and parking area. While there is sufficient area for the building, the shape of the site will predetermine some building angles that may slightly increase the cost of construction.

Site C - Downtown

The grade is essentially flat and fully developed with only a few mature feature trees along the 4th Avenue and Black Street frontages. A large playing field is located at the rear of the property. The site is bounded on three sides by active roadways.

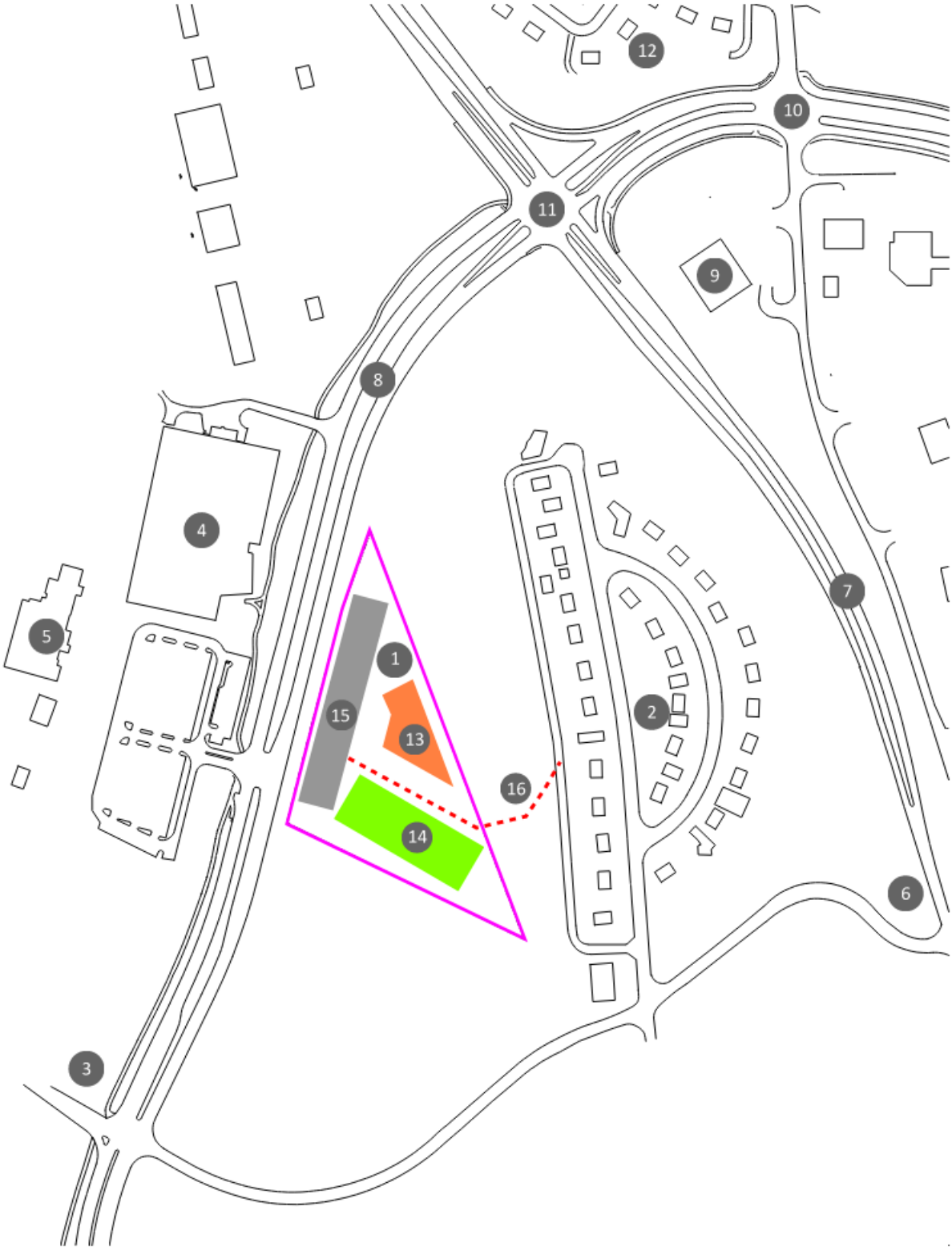
The existing site presents several challenges to construction including busy roadways and minimal lay-down and staging areas during construction. Since the existing School will remain operational during construction, the School should anticipate 2-3 years of service disruption, noise, loss of play areas and student distractions during construction and an additional year of disruption of delay for demolition of the existing School and construction of new playing fields.



EWES SITE ANALYSIS

SITE A - KOPPER KING DEVELOPMENT OPPORTUNITIES NTS

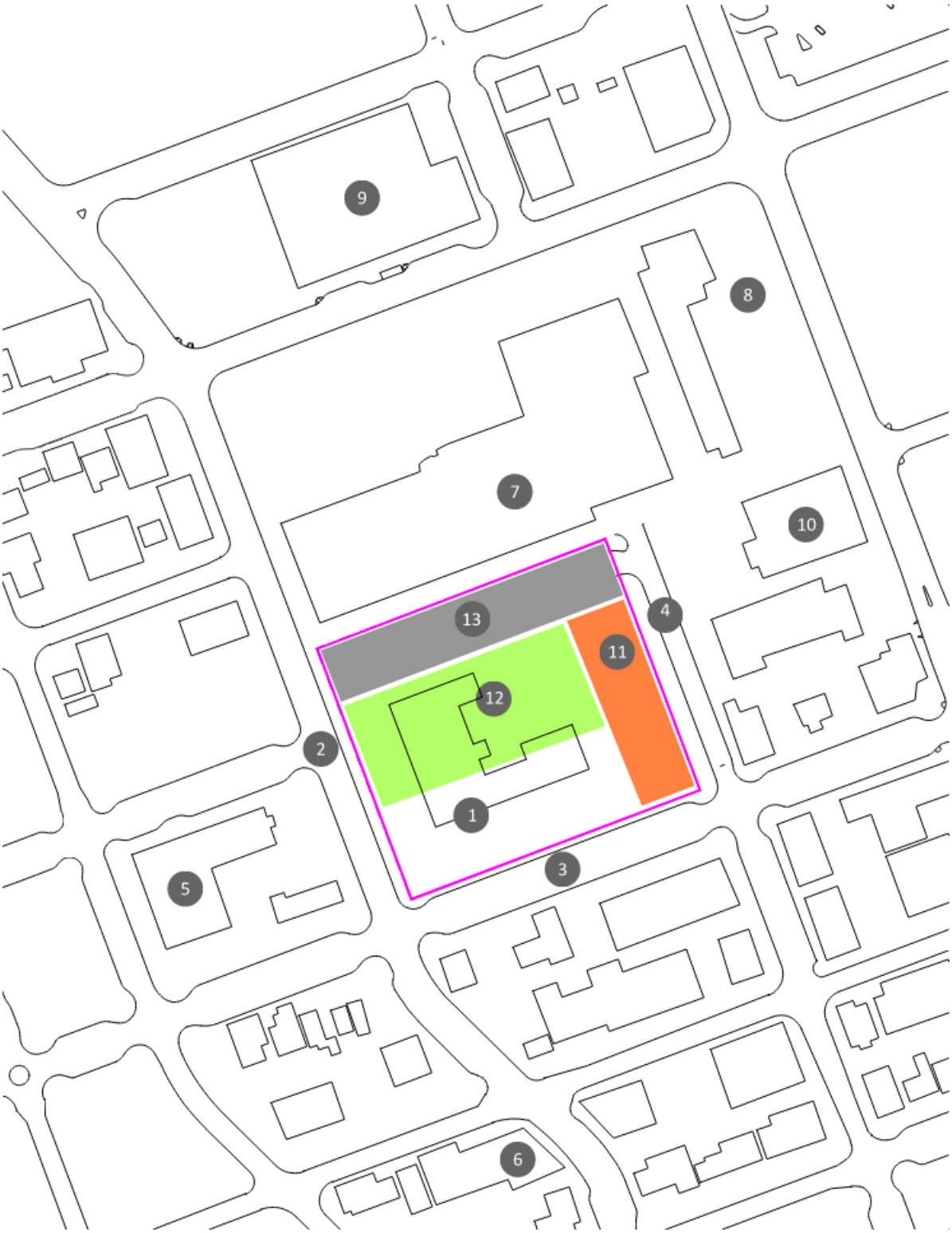
1. LOT 435
2. KOPPER KING
3. TAKHINI NORTH NEIGHBOURHOOD
4. WALKING TRAILS
5. MCINTYRE PUMP HOUSE
6. MCINTYRE CREEK
7. YUKON UNIVERSITY RESIDENCE
8. ALASKA HIGHWAY
9. FOOTPRINT OF FUTURE SCHOOL
10. FOOTPRINT OF FUTURE PLAYING FIELD
11. FOOTPRINT OF FUTURE BUS/PARKING AREA
12. IDEAL DEVELOPMENT AREA OF SITE
13. POTENTIAL EMERGENCY ACCESS ROUTE



EWES SITE ANALYSIS

SITE B - VALLEYVIEW DEVELOPMENT OPPORTUNITIES NTS

1. UNSURVEYED LOT - VALLEYVIEW
2. VALLEYVIEW NEIGHBOURHOOD
3. SUMAINK DRIVE INTERSECTION
4. CANADA GAMES CENTRE
5. MT. MCINTYRE RECREATION CENTRE
6. ALASKA HIGHWAY INTERSECTION
7. ALASKA HIGHWAY
8. HAMILTON BOULEVARD
9. CANADA POST
10. RANGE ROAD/TWO MILE HILL INTERSECTION
11. TWO MILE HILL/ALASKA HIGHWAY INTERSECTION
12. TAKHINI EAST NEIGHBOURHOOD
13. FOOTPRINT OF FUTURE SCHOOL
14. FOOTPRINT OF FUTURE PLAYING FIELD
15. FOOTPRINT OF FUTURE BUS/PARKING AREA
16. CONNECTION TO ADJACENT COMMUNITY



EWES SITE ANALYSIS

SITE C - DOWNTOWN SITE DEVELOPMENT OPPORTUNITIES NTS

1. ECOLE WHITEHORSE ELEMENTARY SCHOOL
2. FOURTH AVENUE
3. BLACK STREET
4. THIRD AVENUE
5. WHITEHORSE MOTORS
6. WHITEHORSE EMERGENCY SHELTER
7. QWANLIN MALL
8. YUKON CENTRE MALL
9. NVD PLACE
10. NORTHLIGHT INNOVATION
11. FOOTPRINT OF NEW SCHOOL
12. FOOTPRINT OF FUTURE PLAYING FIELD
13. FOOTRPINT OF FUTURE BUS/PARKING AREA

4.3 CPTED (CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN)

Proper Crime Prevention Through Environmental Design (CPTED) planning enhances neighbourhoods by strategically designing the physical environment to reduce opportunities for crime, minimize fear, and foster a stronger sense of community. By focusing on natural surveillance, access control, territorial reinforcement, and maintenance, CPTED transforms spaces into “defensible” areas that are safe, welcoming, and well-utilized.

A CPTED scan typically reviews for four main principles:

- Natural Surveillance: Promotes visibility to increase the risk of detection of trespass. This includes using low landscaping, proper lighting, and designing buildings with windows facing public spaces (parking lots, streets) to encourage “eyes on the street”.
- Natural Access Control: Guides people to and from entrances and exits to limit opportunities for crime. It uses physical features like walkways, fences, and landscaping to direct visitors, signaling authorized entry points and denying access to potential offenders.
- Territorial Reinforcement: Uses design features to create a clear distinction between public, semi-public, and private spaces. This builds a sense of ownership, making it easier for residents to notice when someone does not belong.
- Maintenance & Management: Based on the Broken Windows Theory, well-maintained spaces signal ownership and care, deterring criminals who look for signs of neglect, such as graffiti, broken lights, or overgrown landscaping.

Site A - Kopper King

The Kopper King site has a highway commercial orientation. For this reason, it will be the most disconnected site from adjacent land uses and will have the fewest opportunities for Natural Surveillance or ‘eyes on the street’ as well as Territorial Reinforcement.

Site B - Valleyview

The Valleyview site would be sandwiched between the Canada Games Centre and the Valleyview community. While there may be some apprehension by members of the community, it is common for those same members to eventually assume the role of Natural Surveillance over a completed project due to its proximity.

The design team would also do well to incorporate elements of Natural Access Control and Territorial Reinforcement by creating a pedestrian path connecting the community to the CGC through the School.

Site C - Downtown

The Downtown site, while surrounded by some discordant uses, features the best opportunity for all four major principles of CPTED including Natural Surveillance, Natural Access Control, Territorial Reinforcement and Maintenance and Management.

4.4 IMPACTS TO COMMUNITY

Site A - Kopper King

The Kopper King site has the highest potential for local area improvements of the three sites. By developing Site A, the potential exists to create important connections for the public-facing Alaska Highway frontage as well as the rear-facing University side.

The development of Site A could help to establish an emergency access route from the University property as well as foster existing walking and active transportation routes in the area. Increased human activity in and around the site will help increase the 'eyes on the street' factor enhancing security for the property and the adjacent neighbourhoods.

Site B - Valleyview

Similar to Site A, the Valleyview site could benefit from a developed connection between the residential neighbourhood and the Canada Games Centre by reinforcing active transportation linkages between the two areas. Increased activity will increase security for the School and vice versa.

Site C - Downtown

The Downtown site was developed during a much different era in the City's history. Redeveloping the property using good urban design and CPTED principles should lead to a net benefit of the existing community and to the School itself.

4.5 21ST CENTURY SCHOOL DESIGN

Site A - Kopper King

21st-century school design integrates natural environments to boost student well-being, focus, and cognitive function by maximizing connection with nature, enhancing indoor air quality and maximizing outdoor access. For this reason, Site A Kopper King, is well placed to provide these opportunities for these elements to occur as part of the School design.

Site B - Valleyview

Similar to Site A, the Valleyview site is well suited to fulfill the principles of 21st Century education however the exponentially smaller site area will leave fewer natural woodlots and mature forested areas to reinforce connection to nature.

Site C - Downtown

The Downtown site presents the most challenges to the design team for engagement with the natural environment however the design can overcome these shortfalls with a focus on superior daylight and views of green spaces, creation of gardens and courtyards and use of indoor plants, living walls and natural materials. The building design itself can be used as an education tool for sustainability by featuring rain harvesting, solar technology, and green materials.

4.6 ALIGNMENT WITH PUBLIC ENGAGEMENT

The Yukon Government conducted public engagement regarding the three prospective sites through three complementary streams:

- An online survey publicly available to Yukon residents from Feb. 26 - Apr. 26 2026
- Public engagement activities, including four public information sessions with residents and École Whitehorse Elementary School (ÉWES) families
- Targeted stakeholder engagement, including a dedicated day-long engagement session with ÉWES students, and meetings with the ÉWES School Council, the Project Advisory Committee (PAC), neighbourhood associations (Downtown, Takhini, and Valleyview), Whitehorse Mayor and Council, Yukon University, and the Whitehorse Disc Golf Association, which was engaged due to the potential impacts of school development on the existing disc golf course at the Kopper King site.

The Government of Yukon also committed to government-to-government discussions with Kwanlin Dün First Nation and the Ta'an Kwäch'än Council to help inform the final site selection decision; at the time of writing, YG had begun to reach out to local First Nations. The Public Engagement assessment evaluates how well each site responds to the priorities, concerns, and values expressed throughout the engagement process. The criteria focus on factors that stakeholders consistently identified as important to the success of the future school, including quality of life for students, access to amenities and outdoor spaces, community impacts, neighbourhood compatibility, and broader planning considerations. In this way, there is some overlap of these criteria with those of the Educational and Learning Environment Quality; this section is focused on alignment specifically with engagement interests.

Site A - Kopper King

Stakeholders generally characterized Kopper King as a strong alternative to Site B (Valleyview), due to its large footprint, natural setting, and long-term flexibility. Students, staff, the School Council, and the PAC appreciated the site's direct access to forests, trails, and outdoor learning opportunities, as well as its potential to support future school expansion and flexible design options. The School Council identified the site as a promising

and flexible option capable of accommodating future growth, while the PAC highlighted its proximity to natural amenities, Yukon University, and McIntyre Creek.

Whitehorse Mayor and Council also noted that using this site for an Elementary School could create domino opportunities to improve highway access and safety infrastructure. Additionally, the Whitehorse Disc Golf Association (the current users of the site) acknowledged the site's value as a recreational destination while expressing a willingness to explore redesign, relocation, or co-existence solutions should the school be constructed there.

The most common concerns regarding Kopper King related to transportation, safety, and compatibility with surrounding land uses. Students, staff, the School Council, and the PAC all raised concerns about the site's proximity to the Alaska Highway, citing traffic volumes, pedestrian safety, and deficiencies in active transportation infrastructure.

School Council members also identified nearby industrial and commercial uses as potential compatibility concerns. Neighbourhood Associations expressed concerns about increased traffic, impacts on existing recreational amenities, including direct access to nearby trail networks and the on-site disc golf course, and the need for additional safety and infrastructure investments. In their joint submission, the Downtown, Takhini, and Valleyview Neighbourhood Associations argued that the site could create new traffic, environmental, and permitting challenges while relocating the school away from an established urban neighbourhood. Overall, while Kopper King was seen as offering a large site for future growth, minimal disruption during construction, and access to nature, stakeholders consistently identified highway safety, transportation access, and land-use compatibility as its primary drawbacks.

Site B - Valleyview

The Valleyview site received the strongest overall support from education-focused stakeholders, including students, ÉWES staff, the School Council, and the PAC. Stakeholders liked the site's direct access to forests, trails, outdoor learning opportunities, and recreational amenities associated with the Canada Games Centre. The site was viewed as offering a high-quality learning environment, strong recreational opportunities, a safe setting for students, and observed opportunity to support future growth.

A significant advantage identified across multiple groups was the ability to construct the new school without disrupting current students, preserving educational continuity and avoiding years of construction-related impacts; this advantage applies to Kopper King as well. The site's location was also viewed as well-suited to the city-wide ÉWES catchment, supportive of long-term educational, recreational, and operational needs.

Most concerns regarding the Valleyview site focused on community and environmental impacts rather than educational suitability. Neighbourhood groups expressed concerns about the potential loss of green space, impacts to existing trail networks, removal of

forested buffers, and increased traffic in the surrounding area. The Valleyview Community Association emphasized the importance of protecting neighbourhood character and preventing school-related traffic from entering residential streets.

In their joint submission, Neighbourhood Associations also raised concerns regarding potential rezoning and approval delays, environmental impacts, and the relocation of the school away from the downtown core as it is part of the fabric of the neighbourhood. While these concerns were not generally related to the quality of the learning environment itself, they represented the primary challenges identified for the Valleyview option during the engagement process.

Site C - Downtown

The Downtown site was strongly supported by Neighbourhood Associations and community stakeholders due to its established role within the downtown core. Supporters viewed the school as an important community asset that contributes to neighbourhood vitality, walkability, and long-term downtown development. Stakeholders emphasized that rebuilding on the existing site would maximize the use of existing infrastructure, transportation networks, and municipal services while avoiding the rezoning, planning, and approval processes required at the alternative sites. The site's central location, proximity to community amenities, and continued contribution to downtown activity were also identified as key advantages.

Students, ÉWES staff, the School Council, and the PAC expressed significant concerns regarding the Downtown site. The most frequently cited issue was the impact of a multi-year on-site rebuild, including construction-related noise, dust, safety risks, operational challenges, and the temporary loss of already limited outdoor recreation space. Stakeholders also raised concerns regarding the site's limited green space, constrained opportunities for outdoor learning, and reduced capacity for future growth. Additional concerns related to traffic, safety, and the surrounding social environment, with many stakeholders questioning whether the location could provide the same quality of learning environment, access to nature, and recreational opportunities available at the Valleyview and Kopper King alternatives.

Summary

Public engagement revealed a clear divide between educational and community priorities. Students, ÉWES staff, the School Council, and the PAC generally favoured the Valleyview site for its access to nature, recreation, safety, and educational opportunities. Kopper King was viewed as a good secondary option due to its natural setting and long-term flexibility, though concerns were raised regarding highway safety and transportation access. In contrast, the Downtown site received strong support from the Neighbourhood Associations for its role in supporting downtown vitality, existing infrastructure, and neighbourhood connectivity, but generated concerns from education stakeholders for construction impacts, limited green space, and long-term flexibility. The public survey results favoured the Downtown site ("In your view, which one of the following sites would be the best location

for the new École Whitehorse Elementary School?") at 42.8% of respondents, but was closely followed by the Valleyview site at 35.3%. Kopper King was preferred by fewer than 14% of respondents.

4.7 EDUCATIONAL AND LEARNING ENVIRONMENT QUALITY

This section evaluates how effectively each site could support student learning, wellbeing, and educational delivery. It considers whether a site can maintain educational continuity during construction and support 21st century learning styles, including access to nature-based, outdoor, and land-based learning opportunities, community resources, and social/collaborative learning. The assessment also examines proximity to area resources, the suitability of the site's surroundings, and opportunities for educational partnerships. These factors help determine each site's ability to provide a safe and engaging learning environment for a 21st century school.

Site A - Kopper King

The Kopper King site (Site A) benefits from a strong natural setting, with direct access to forests, trails, and outdoor learning opportunities. Its large, undeveloped footprint, characterized by contoured terrain and extensive tree cover provides a unique setting that supports local wildlife habitat while offering significant opportunities for outdoor education, recreation, and experiential programming. The site is also connected to an established network of formal trails and an existing disc golf course, both of which contribute to its learning environment quality. While the City of Whitehorse notes that municipal trails are not regularly monitored or supervised , they remain a valued community asset. The Whitehorse Disc Golf Association is willing to work collaboratively on potential redesign, relocation, or coexistence solutions should the Kopper King site be selected for school development.

The site's proximity to Yukon University (approximately 1 km away) presents opportunities for educational partnerships and access to a range of specialized learning, recreational, and community resources. Potential collaborative opportunities could include access to the university's gymnasium, library, computer labs, and programming associated with the Yukon Native Language Centre, Indigenous and land-based learning initiatives, and the Yukon Art Gallery. Although realizing these opportunities would require the establishment of a partnership with Yukon University, if developed such relationships could enhance experiential learning opportunities and expand the educational resources available to ÉWES students.

Conversely, the lands directly across the Alaska Highway from the site contain a concentration of commercial, transportation, and industrial-oriented uses, including freight, towing, fuel service, and bulk materials handling for a drilling and blasting operation. While these businesses contribute to the local economy, they are not aligned with the interests of an Elementary school. The proximity of these activities is not conducive to a learning environment; they may see traffic, substantial noise, odours, and dust. These factors may limit the site's ability to provide an appropriate outdoor learning environment.

Site B - Valleyview

Like the Kopper King site, the Valleyview site benefits from a strong natural setting, with nearby access to forests, trails, and outdoor learning opportunities that support experiential and land-based education. The nearby Mount McIntyre trail network further expands opportunities for outdoor recreation and environmental learning. Although these trails are not located directly on the site, they are publicly accessible and maintained through a combination of efforts by the Whitehorse Nordic Centre Ski Society and the City of Whitehorse. During the summer months, the Whitehorse Nordic Centre trail network is available for public, non-motorized use.

The site's adjacency to the Canada Games Centre (via a pedestrian-friendly crossing at Hamilton Boulevard) offers access to an indoor gymnasium, pool, ice rinks, and an artificial turf field. These facilities could support school programming, extracurricular activities, and after-school recreation, strengthening the site's quality in this regard. The proximity to the CGC, eliminates the scheduling and expense of bussing students to and from the Facility. Students spend more time in the activity and less time sitting on the bus.

The Valleyview site is characterized by a relatively flat landscape, tree cover, and proximity to the established Valleyview residential neighbourhood (with ~170 residents in 2025). Compared to the busier downtown site and the highway-adjacent, industrial influences surrounding Kopper King, Valleyview offers a quieter, more residential setting while remaining close to central Whitehorse and key community amenities. The site's combination of nearby natural areas, recreational amenities, and residential character creates a setting that feels connected to the city while maintaining a slower pace and strong community atmosphere.

Site C - Downtown

The Downtown site benefits from proximity to community amenities, cultural destinations, and walkability advantages for students. However, education-related stakeholders identified several limitations related to the quality of the learning environment. The site lacks meaningful green space and direct access to nature, limiting opportunities for outdoor, experiential, and land-based learning. Accessing natural areas outside the downtown core would typically require students to travel through the downtown environment or rely on transportation services, increasing both the cost and logistical complexity of outdoor programming and reducing opportunities for frequent nature-based learning experiences.

The surrounding area can be considered a negative, as well. Whitehorse's downtown core contains a concentration of services supporting the intersection of individuals experiencing homelessness, mental health challenges, and substance use issues (per City of Whitehorse Housing Needs Assessment, 2026). In engagement, some stakeholders expressed concerns about the potential impacts of these realities on the safety and wellbeing of elementary-aged student.

Most significantly and emphasised by students and teachers alike in the public engagement sessions, rebuilding on the existing site would expose students to several years of construction-related disruptions, including noise, dust, a reduction of the already limited outdoor space, and operational constraints that would negatively affect learning outcomes. Importantly, this concern is shortly term, limited to the construction period and is not expected to have a lasting impact on the quality of the educational and learning environment once the project is complete.

Summary

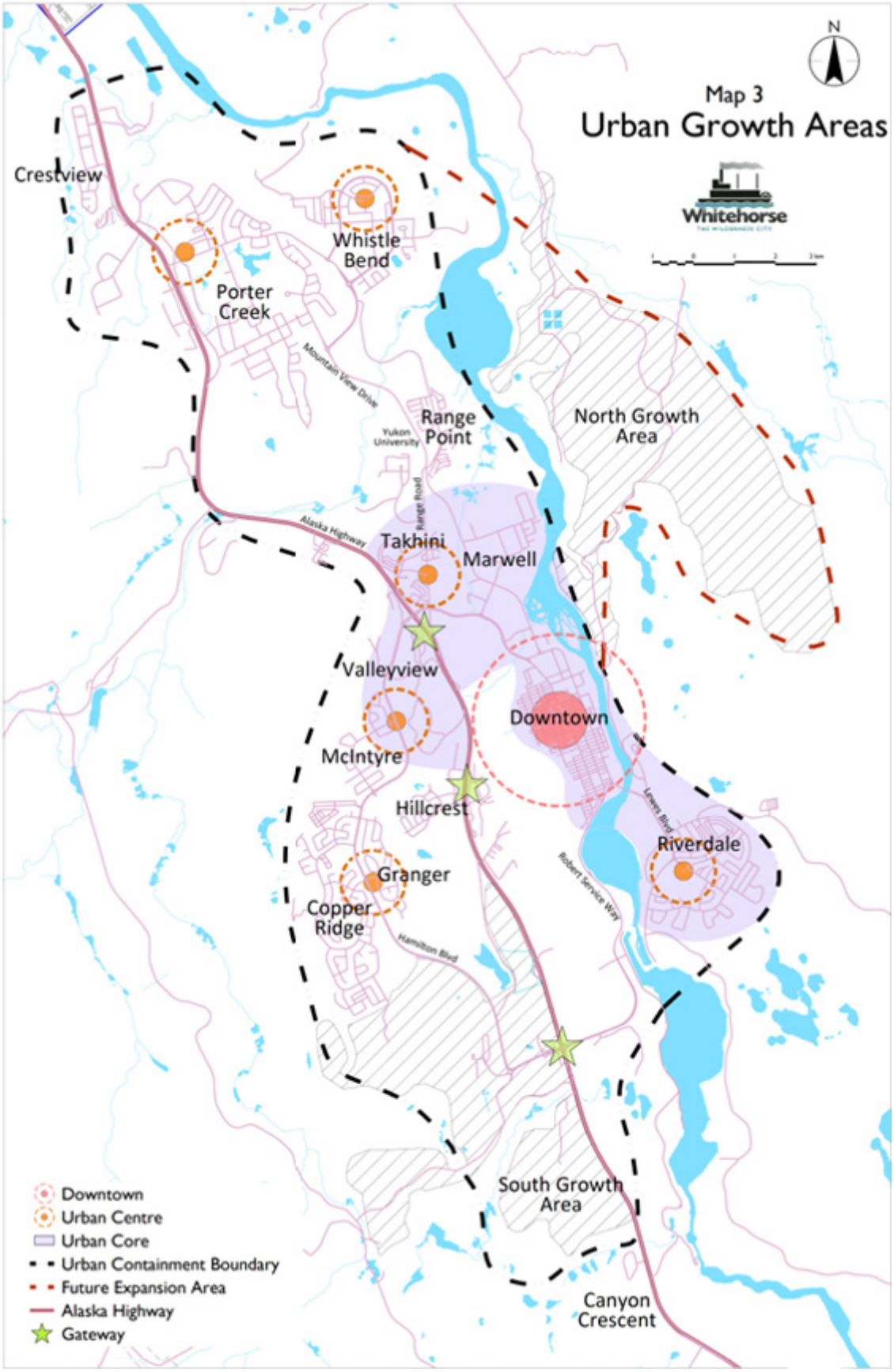
Valleyview offers the strongest overall educational and learning environment. Its combination of direct access to nature, outdoor learning opportunities, nearby recreational facilities, suitable local environment, and the short-term benefit of uninterrupted school operations during construction creates a highly supportive setting for student learning and wellbeing. Kopper King is next best, benefiting from its natural setting and outdoor education potential, however, the adjacent industrial land uses reduce its overall suitability. In contrast, the Downtown site benefits from access to community and cultural amenities but is constrained by limited green space, and the short-term disruptions associated with rebuilding on the existing school site. Overall, Valleyview provides the strongest balance of educational, recreational, and operational advantages, followed by Kopper King and then the Downtown site.

4.8 LONG TERM FLEXIBILITY AND GROWTH

This assessment evaluates each site's ability to support the far-future needs of École Whitehorse Elementary School. It considers the site's capacity to accommodate future enrolment growth (past the original build for 600 students), support building additions, and generally adapt to evolving educational models and programming.

To reiterate, the initial build is expected to support 600 students and approximately 55 staff. The requirements are for 3,000 square metres of school footprint (assuming three storeys), another 3,000 square metres of vehicle space, and a playing field of 3,600 square metres. Typical land-grossing factors would double the requirement for landscaping, circulation, and design allowances. This requirement is then 1.92 hectares.

Finally, this section also evaluates the site's location in supporting the School's city-wide catchment over time. The 2040 OCP focuses residential growth within the Urban Core, representing 50% of 20-year residential growth. Map 3 from the OCP (page 117; please see following page) shows the urban core zone and anticipated urban centres within the urban containment boundary.


Map 3
Urban Growth Areas
N
Whitehorse
Crestview
Whistle Bend
Porter Creek
Mountain View Drive
Yukon University
Range Point
North Growth Area
Range Road
Alaska Highway
Takhini
Marwell
Valleyview
Downtown
McIntyre
Hillcrest
Lewes Blvd
Riverdale
Robert Service Way
Granger
Copper Ridge
Hamilton Blvd
South Growth Area
Canyon Crescent
Downtown
Urban Centre
Urban Core
Urban Containment Boundary
Future Expansion Area
Alaska Highway
Gateway

Site A - Kopper King

The Kopper King site provides the greatest long-term flexibility and growth potential of the three options. At 4.3 buildable hectares (total ~25 ha), its large footprint offers significant capacity to accommodate future enrolment growth through a variety of means. At this site, one could either:

- Build the school at one or two storeys (instead of three).
- Build a full additional school including facility for 600 students, additional field, and more parking, for a total campus of 1,200. This assumes two, three-storey school buildings and duplicate requirements for outdoor spaces at grade. The site is almost able to accommodate the same set of two-storey schools.
- Build a high school adjacent to the Elementary School. A high school of 600 might be about ~15-20% larger than an Elementary School of the same capacity. Both facilities at three-storeys, with outdoor spaces, would fit on the Kopper King site.
- Build the school, and offer building opportunities to other aligned interests, such as a daycare, recreation facility, urban farm, or cultural centre.

The site benefits from its proximity to several of Whitehorse's largest and fastest-growing residential areas, particularly Porter Creek and Whistle Bend, and is nearby the urban core zone. It is further from the other major population centres (Riverdale and Downtown), but situating the new school at Kopper King would likely reduce travel times for a large proportion of the school's city-wide catchment.

Site B - Valleyview

The Valleyview site offers a balance between long-term flexibility and immediate advantages. At 2.69 hectares, the site is certainly large enough for the three-storey school or would also support a two-storey building with all grade-level outdoor amenities. Pursuing a three-storey arrangement on the triangular site provides some growth capacity: assuming proportional increases across all categories (education, parking, and field space), the site could support about 800 students. A potential addition could be supported through careful design at the outset (given the noteworthy triangular shape). As the lot is unsurveyed, there may also be the potential to expand the land parcel (or shift its shape) through negotiations with the neighbouring institutional landowners.

Valleyview site's location closer to several of Whitehorse's larger, northern residential neighbourhoods also supports catchment accessibility and long-term service to the greater, city-wide student population. Considering the gravity of new population centres in the north, it is the more central of the options to the school's wide catchment area. It is also nearby a noted "gateway", which is intended to provide a positive impression of the City via enhanced landscaping and markers of local pride. Such a co-location would be positive for an elementary school.

While its smaller, irregular footprint may constrain future building additions and large-scale enrolment growth compared to the Kopper King site, Valleyview is sufficiently sized to accommodate projected school needs while staying flexible for evolving educational standards.

Site C - Downtown

As the smallest site under consideration, the Downtown site provides limited opportunities to accommodate future enrolment growth or expand recreational and support facilities under the same design model as the other sites. At 1.7 hectares, it requires a smaller site allowance (1.77 vs 2.0) to accommodate the three-storey footprint and at-grade amenities. Any additional growth could be accommodated in one of three ways:

- Vertically, via additional floors. As per Schedule E of the Whitehorse's 2025 Zoning Bylaw, the downtown site has a maximum vertical construction height of 25 meters, or 82 feet. This maximum height provides room for the addition of approximately two vertical floors (over and above three storeys).
- Horizontally, via an addition. This would further decrease the site allowance, decreasing landscaping and outdoor playground opportunities, and constraining future flexibility for more growth or any change.
- A second spoke site (if available), which decreases operational efficiency and requires a new site and building. This option would keep the school communities smaller, which might be considered advantageous.

Any of these options accommodates inside spaces but would require access to additional outdoor amenities. These could be located on the rooftop, or on a separate nearby site.

Despite these constraints, the site benefits from established municipal infrastructure, existing transportation connections, and proximity to downtown amenities. The site is also most central to the existing large communities of Riverdale and Downtown; however, it is the furthest from the newer communities of Whistle Bend and Porter Creek.

Summary

The Kopper King site offers the greatest long-term flexibility and growth potential, with the largest footprint, the highest capacity for future enrolment growth, building additions, and evolving educational programming. Valleyview provides similar opportunities for growth potential, as a singular elementary campus may be oversized past 800 students. As anticipated, the Downtown site is the most constrained option, providing the least flexibility over time.

5.0 CIVIL SITE SERVICING ANALYSIS

5.1 OVERALL FINDINGS

Kobayashi + Zedda Architects retained Associated Engineering to undertake a highlevel, desktop review of civil servicing, grading, stormwater management, and site access considerations for three potential sites: the existing Downtown Site, the Valleyview Site along Hamilton Boulevard, and the Kopper King Site near the Alaska Highway.

This memorandum provides a qualitative comparison of the three candidate sites based on available background information, record drawings, GIS data, and City of Whitehorse standards. The assessment does not include detailed design, infrastructure capacity modeling, or traffic impact analysis, and findings are intended to inform site selection rather than confirm final servicing solutions.

5.2 SITE COMPARISON HIGHLIGHTS

Site A - Kopper King

The Kopper King Site presents the greatest servicing and grading complexity of the three sites, though development remains technically feasible. Significant topographic variation, steep localized slopes, and the absence of existing storm sewer infrastructure will require more extensive grading, earthworks, and carefully planned stormwater management measures.

Development of the preferred sub-area will necessitate regrading to create a suitable building area, with finished floor elevations governed primarily by gravity sanitary servicing constraints. Stormwater management will be more involved due to steep slopes, drainage from the Alaska Highway ditch, potential ponding in onsite depressions, erosion risk, and the site's location within the McIntyre Creek watershed, likely necessitating on-site controls, additional treatment requirements, and possibly downstream conveyance improvements.

Water servicing can be provided from the adjacent distribution system; however, existing fire flow capacity is marginal and will require further coordination with the City and potentially system upgrades or mitigation measures. Sanitary servicing is anticipated to be feasible via the existing highway crossing, subject to confirmation of pipe condition and elevation, with downstream capacity expected to be sufficient following prior system upgrades.

While the Kopper King Site is expected to require higher capital investment and design effort for grading and servicing, these challenges are not anticipated to preclude development of the proposed EWES, subject to detailed design and further investigation.

Site B - Valleyview

The Valleyview Site is generally feasible from a civil servicing and grading standpoint, with moderate complexity relative to the Downtown Site. Gently undulating topography will require moderate regrading and site leveling to establish appropriate building grades and positive drainage toward adjacent roadside ditches, primarily along Hamilton Boulevard.

While stormwater management will require careful consideration due to increased impervious area relative to existing conditions and reliance on ditch conveyance, suitable drainage solutions are anticipated to be achievable through a combination of surface grading and potential internal storm sewer infrastructure, subject to downstream capacity confirmation.

Water servicing is readily available from adjacent highcapacity mains and is expected to meet both domestic and fire flow requirements, although new hydrants will need to be installed closer to the site. Sanitary servicing can be provided from the nearby trunk sewer along Hamilton Boulevard, with adequate downstream capacity anticipated based on prior system upgrades.

While the triangular site configuration and arterial roadway frontage may increase servicing coordination and construction complexity, overall grading and servicing conditions are not expected to preclude development of the Valleyview Site.

Site C - Downtown

The Downtown Site presents the fewest constraints from a grading and servicing perspective. The site is generally flat, with established positive drainage toward adjacent roadways and existing underground storm sewer infrastructure readily available for connection. Only modest regrading is anticipated to achieve positive drainage and appropriate finished floor elevations, with no significant cut or fill requirements.

Stormwater management challenges are generally limited; however, despite the redevelopment representing the same land use with marginal changes to runoff volumes, the existing storm sewer system was likely not designed to modern standards that account for climate change and therefore may be undersized. A direct connection to the municipal system incorporating an oil/grit separator may be required depending on final parking counts and city requirements .

Water servicing is well supported by multiple adjacent watermains with sufficient capacity to meet domestic and fire flow requirements, subject to confirmation of hydrant coverage and potential localized upgrades along 3rd Avenue. Sanitary sewer servicing is similarly robust, with direct access to an upgraded trunk sewer system along Black Street that is anticipated to have sufficient capacity.

Overall, grading, stormwater, water, and sewer servicing considerations are not anticipated to pose any significant material constraints to redevelopment of the Downtown Site.

5.3 SUMMARY

In summary, from a civil and servicing perspective, the Downtown Site is the most straightforward to develop, followed by the Valleyview Site. The Kopper King Site remains feasible but is associated with increased technical complexity, uncertainty, and potential cost. Confirmation of infrastructure capacities, environmental requirements, and detailed grading and servicing strategies would be required during subsequent phases should any site advance to detailed design.

6.0 ENVIRONMENTAL SITE ASSESSMENTS

6.1 SITE A: KOPPER KING

Based on the findings of this Phase I ESA, the Property has never been fully developed and remains primarily forested, with only disc golf nets, utility poles, and signage present. No structures, paved surfaces, or evidence of environmental impairment were observed. The Property includes natural forested terrain and a wetland area associated with McIntyre Creek, and is accessed via an unpaved road from University Drive.

No above-ground storage tanks (ASTs) or underground storage tanks (USTs) were observed during the site visit.

A review of surrounding land uses within 200 m identified a mix of forested areas, residential neighbourhoods, institutional facilities, transportation corridors, and commercial sites. The only off-Property feature presenting a low potential environmental issue is the Fas Gas Plus station located approximately 150 m south; however, no historical contamination was documented, and the site is separated from the Property by the Alaska/Klondike Highway.

Historical aerial imagery indicates the Property has remained largely undeveloped since at least 1965, with only minor changes related to access roads and recreational use. No archival materials or historical reports specific to the Property were identified. Land titles review confirms that the Property is surveyed but untitled and remains under Yukon Government administration and control.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no areas of potential environmental concern (APECs) were identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows: Fas Gas Plus Gas Station (Off-Property).

Tetra Tech does not recommend further investigation for the Property.

6.2 SITE B: VALLEYVIEW

Based on the findings of this Phase I ESA, the Property is undeveloped and remains predominantly forested, with pedestrian trails providing access from the Valleyview residential area to CGC. No buildings, paved surfaces, or evidence of chemical or waste storage were observed during the site visit conducted by Tetra Tech on March 17, 2026. No above-ground storage tanks (ASTs) or under-ground storage tanks (USTs) were observed during the site visit.

Historical aerial imagery from 1963 to 2024 indicates the Property has remained largely forested, with only minor changes for access and recreational use. The Property is relatively flat. Publicly visible surrounding land uses within 200 m comprise a mix of parks and recreation, residential, institutional, and highway commercial uses. Yukon Archives and public record searches produced no reports specific to the Property, and a Land Titles Branch search indicates the parcel is unsurveyed and untitled and is administered, not owned, by the Yukon Government Land Development Branch.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no area of potential environmental concern (APEC) was identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows: Historical Irregular Waste Disposal.

Tetra Tech does not recommend further investigation for the Property at this time. A chance find procedure should be implemented during earth works based on the historical irregular waste disposal that occurred in the Property vicinity.

6.3 SITE C: DOWNTOWN

Based on the findings of this Phase I ESA, the Property is occupied by the École Whitehorse Elementary, a three-storey concrete and brick elementary school building that was constructed in 1954. Prior to 1954 the Property housed an army barracks. The Property is relatively flat, and water drains into the underlying soils or onto the surrounding streets.

Three above ground storage tanks (ASTs) are currently on the Property. Two are propane tanks that supply air handling units, and one is a heating oil tank that supplies the boilers. A 2003 report by EBA Engineering Consultants documented the removal of a historical heating oil underground storage tank (UST). The report did not include UST details (e.g., size, contents) but noted that residual hydrocarbon concentrations may remain at about 3.4 m below ground surface and observed a hydrocarbon sheen in groundwater during excavation.

A March 2015 report completed by Summit Environmental Consultants Inc. identified multiple hazardous building materials at the Property. Limited visual assessment was possible because snow cover restricted the identification of stains and other suspect materials. Records review also identified a former on-Property gun range in the basement. Whitehorse Motors, located 30 m west of the Property (cross-gradient), was listed as a contaminated site in the Yukon Contaminated Sites Registry.

Tetra Tech recommends that a Phase II ESA be completed to assess if the identified APECs have impacted the Property. Tetra Tech also recommends that the Property be inspected again in snow-free conditions to confirm the absence of staining, signs of underground utilities, and/or stressed vegetation. Moreover, due to the likely presence of hazardous

building materials, a comprehensive, up-to-date hazardous building materials survey and any required abatement must be completed and documented prior to any renovation or demolition at the Property.

6.4 SUMMARY FOR ALL SITES

All sites fall within the Kwanlin Dün First Nation and Ta'an Kwäch'än Council Traditional Territories. No known heritage sites have been identified on or adjacent to the Properties.

Environment Canada maintains an air quality monitoring network, and provides an Air Quality Health Index (AQHI). The AQHI is a scale designed to help the user understand what risk the air quality in a region may pose to human health, and is an aggregate of measured particulate matter in the air, ozone and ground level, and concentration of nitrogen dioxide. It measures the air quality in relation to human health on a scale from 1 to 10. The higher the number, the greater the health risk associated with the air quality.

Whitehorse typically scores between 1 – 3 on this scale (low risk for general and at risk populations), and periodically reach 4 (moderate risk) during normal conditions (such as when road dust is prevalent in the spring). Transient sources, such as passing vehicles or wood fires may raise the AQHI locally for short periods of time. Tetra Tech did not observe any local air pollution concerns during the site visit.

Tetra Tech reviewed the Critical Habitat for Species at Risk national dataset maintained by ECCC. There are no critical habitat areas containing the properties. There is a proposed critical habitat area for Brombus Bohemicus (Gypsy Cuckoo Bumble Bee), which includes the three properties under review.

For noise, the key observed sources were traffic (Alaska Highway, Hamilton Blvd, and 4th Avenue) and flights to/from the Whitehorse Airport. None of the noise reached the threshold of needing to investigate potentially hazardous noise levels according to the guidelines in the Canadian Centre for Occupational Health and Safety.

7.0 ELECTRICAL UTILITIES

7.1 SUMMARY OF FINDINGS

The assessment considered the presence of existing electrical infrastructure, the ability to accommodate future electrical demands (including potential EV bus charging), potential impacts of utility tie-ins on site design, and the need for upgrades to upstream utility systems. Input from ATCO Electric Yukon informed the review.

All three sites are considered electrically feasible, with no major upgrades to upstream utility infrastructure anticipated. The primary differences between the sites relate to servicing approach, anticipated costs, and the degree of influence electrical connections may have on site planning and design.

The existing EWES site offers the most straightforward servicing solution, benefiting from existing onsite primary electrical routing that may be reused. This results in lower anticipated connection costs and minimal impact on site design compared to the other options.

The Valleyview and Kopper King sites are also serviceable but would require new dedicated three-phase overhead electrical extensions to the site boundaries, along with new transformer installations. These requirements are expected to result in higher connection costs and greater sensitivity to site layout, although they also provide opportunities to plan for future electrical capacity during initial design.

Overall, electrical utilities are not a limiting factor for any of the sites. The existing EWES location presents the lowestrisk and lowestcost option from an electrical perspective, while Valleyview and Kopper King remain viable alternatives that would require more careful coordination during detailed design.

8.0 TRAFFIC ASSESSMENT

8.1 OVERALL FINDINGS

This memorandum provides a highlevel qualitative assessment of transportation considerations associated with three potential sites for the replacement of the Ecole Whitehorse Elementary School (EWES).

The review considers surrounding roadway context, site access flexibility, active transportation and transit connectivity, and anticipated roadway or intersection upgrade requirements. The assessment does not include onsite circulation design, traffic counts, or capacity analysis, and any identified improvements would require confirmation through a detailed Traffic Impact Assessment (TIA) in consultation with the City of Whitehorse.

Site A - Kopper King

The Kopper King Site relies primarily on access from the Alaska Highway via the Prospector Road intersection, which concentrates school traffic on a roadway designed to accommodate higher volumes and limits impacts to local residential streets. This intersection is expected to require signalization and geometric upgrades to safely accommodate school-related traffic. In addition, an access road extending off the new signalized intersection would be required; this new access road would implement reduced speed school zones and other traffic control measures if necessary in order to avoid implementing such measures on the highway.

While a secondary emergency access to University Drive may be feasible, active transportation connectivity is currently limited by highway traffic speeds and volumes, and transit service is comparatively constrained. As a result, this site is more vehicle-oriented than the other options and offers fewer multimodal transportation opportunities.

Site B - Valleyview

The Valleyview Site is located along Hamilton Boulevard, an arterial roadway better suited to accommodate higher traffic volumes associated with institutional land uses. Access is anticipated near an existing signalized intersection serving the Canada Games Centre, providing a controlled and predictable access environment for school traffic.

Active transportation infrastructure, including sidewalks, a multiuse path, and controlled pedestrian crossings, supports safe access for walking and cycling. Transit service along Hamilton Boulevard provides direct connections to multiple neighbourhoods. While intersection modifications and an additional access leg would be required, these upgrades are expected to be manageable within the existing transportation network.

Site C - Downtown

The Downtown Site benefits from a finegrained street grid that provides multiple route

options and strong pedestrian and transit connectivity. Existing school-related traffic is already accommodated within the surrounding network, and post construction traffic impacts are expected to remain generally consistent with current conditions, given the high proportion of students who are bused. However, the constrained downtown roadway environment, limited right of way, and the dead-end condition of 3rd Avenue reduce access flexibility.

A key transportation challenge at this site is construction staging, as the existing school is anticipated to remain operational during redevelopment, requiring careful traffic management to address interactions between construction vehicles, school traffic, and high pedestrian volumes.

8.2 SUMMARY

Overall, all three sites are considered feasible from a transportation perspective, subject to detailed traffic analysis and design. The Downtown Site offers the strongest pedestrian and transit connectivity but presents notable construction phase challenges.

The Valleyview Site provides the most balanced transportation context, with arterial road access, existing signalization, and good multimodal connectivity.

The Kopper King Site is feasible but would require more substantial roadway upgrades and offers comparatively limited walking, cycling, and transit access.

9.0 GEOTECHNICAL ASSESSMENT

9.1 INTRODUCTION

Tetra Tech Canada was retained by Kobayashi + Zedda Architects (KZA) to complete a preliminary desktop geotechnical site evaluation for three candidate locations being considered for the construction of the new École Whitehorse Elementary School (EWES). The purpose of this assessment is to support site selection by characterizing anticipated geotechnical conditions, identifying potential constraints and hazards, and outlining considerations for future development.

This evaluation is based solely on a desktop review of publicly available information, including surficial geology mapping, Google Earth imagery, and Tetra Tech's archived historical borehole and test pit data. No site-specific geotechnical field investigations were completed as part of this work; therefore, all subsurface conditions described herein are preliminary and subject to confirmation through detailed site investigations.

Site A - Kopper King

Site A is a large, undeveloped, forested site underlain by glaciofluvial deposits, with anticipated layers of organics, silty sand, and underlying sand and gravel. The site exhibits variable topography, hummocky terrain, and proximity to a stream and wetland, suggesting potentially shallow groundwater in some areas. Development at this site will require tree clearing and comprehensive geotechnical investigation, with site planning informed by topography and surface water features.

Site B - Valleyview

Site B is an undeveloped, sloped site also underlain by glaciofluvial deposits. Anticipated subsurface conditions include organics over very loose sand, with localized low plasticity silt identified in nearby boreholes. Although groundwater has not been encountered in surrounding investigations, the presence of loose sand and sloping terrain introduces a higher potential for liquefaction and foundation design challenges, which could complicate development.

Site C - Downtown

Site C is a previously developed urban site underlain by uncontrolled fill and fluvial gravel over lacustrine sand and silt. Groundwater has historically been encountered at moderate depth, and no permafrost or bedrock has been identified in the surrounding area. While liquefaction is not considered a high risk due to historically over-consolidated soils in downtown Whitehorse, it remains a potential concern that should be evaluated through sitespecific testing. The presence of uncontrolled fill and an existing structure represents a notable geotechnical constraint.

9.2 SUMMARY

In summary, each site presents distinct geotechnical considerations and risks. Site A offers significant land area and flexibility but requires extensive investigation and site planning. Site B presents potential foundation and liquefaction concerns due to loose sandy soils and slope conditions. Site C benefits from existing infrastructure but is constrained by uncontrolled fill and redevelopment challenges. A detailed, sitespecific geotechnical investigation is recommended for the selected site to confirm subsurface conditions and inform design and construction decisions.

10.0 COMPARISON OF SITE SUITABILITY

10.1 SITE EVALUATION MATRIX

To aid the decision-making process, the design team devised a quasi-objective scoring matrix to provide a comprehensive scoring framework as a means to compare the three options.

The Yukon Government devised the criteria to be evaluated and provided the weighting (importance) for each criteria. The consultant team have input the score in their respective specialties.

EWES SITE EVALUATION MATRIX		Kopper King		Valleyview		Downtown	
	Value (V) 1=low 5=high	Score (S) 1=low 10=high	Total VxS	Score (S) 1=low 10=high	Total VxS	Score (S) 1=low 10=high	Total VxS
Cost - Class D estimate to develop the lot and build the school using the same functional programme for each site.	5	6	30	7	35	5	25
Community input - from engagement sessions, meetings and the public suvey (school community; school council, staff, students = weighting of 60%, weighting for the public: online survey, other stakeholder meetings = weighting of 40%).	4	1	4	6	24	3	12
Schedule - including zoning process requirments and the time to have full use of the school building and outdoor areas.	4	6	24	6	24	5	20
Site advantages and constraints - including impacts of construction on current students, staff and families.	4	8	32	7	28	5	20
School community impact - including impacts of construction on current students, staff and families.	5	7	35	7	35	5	25
Zoning and permitting - including zoning risks and potential costs related to City infrastructure upgrades.	2	6	12	6	12	8	16
Traffic and neighbourhood impacts - during and after construction.	3	6	18	7	21	5	15
Total Score			**155**		**179**		**133**

11.0 COST & BUDGET CONSIDERATIONS

11.1 REPORT PURPOSE

The purpose of this report is to provide a realistic estimate of the Project cost based on the information available at the time of writing.

The opinion expressed in this report has been prepared without the benefit of detailed architectural, structural, mechanical and electrical drawings and should, therefore, be considered a Class D estimate. Based on the documents reviewed, our estimate should be correct within a range of approximately +/- 25%.

In order to provide an accurate cost estimate for the Project, BTY Group strongly recommends that a professional Quantity Surveying organization be retained to provide a detailed analysis of any design information produced on behalf of the Client during the remaining stages of design.

11.2 PROJECT BACKGROUND AND DESCRIPTION

The Government of Yukon is preparing to design and construct a new French immersion school in Whitehorse, the Ecole Whitehorse Elementary School (EWES). Cost estimate for the following three sites is prepared for consideration:

Site A - Kopper King

This is a large (24.9 Hectares), multi-faceted shaped lot fronting on the Alaska Highway. The terrain of Site A is highly variable, heavily treed with some wild areas including Mclntyre Creek and the Beaver Pond. The site is well connected to nature trails, the nearby Millenium Train and several gravel access roads.

Site B - Valleyview

This is a triangular-shaped lot (2.67 Hectares) fronting Hamilton Boulevard across from the Canada Games Centre. The site is unsurveyed and has proximity to the Valleyview residential area and community playground.

Site C - Downtown

This is the current location of EWES on 4th Avenue at Black Stret. It is the smallest (1.7 Hectares) of the three sites. The site context is urban. While traffic on the road is heavy, the speed is regulated and considered safe.

11.3 COST ESTIMATES

Estimated costs for the three sites are as follows:

Site A: Kopper King	$87,205,900
Site B: Valleyview	$84,380,000
Site C: Downtown	$88,255,900

The cost consultant's full report is provided in the appendices.

12.0 APPENDICES

12.1 CIVIL AND TRAFFIC REPORT

Associated Engineering | GLOBAL PERSPECTIVE. LOCAL FOCUS.

TECHNICAL MEMORANDUM

Issue Date:	September 8, 2026	**File No.:**	AERIS
To:	Jack Kobayashi	**Previous Issue Date:**	March 31, 2026
From:	Evan Latos, P.Eng	**Project No.:**	2023-2863
Client:	Kobayashi + Zedda Architects		
Project Name:	Ecole Whitehorse Elementary School		
Subject:	Potential School Site Locations - Civil and Traffic Review		

1 INTRODUCTION

The Government of Yukon (YG) is planning to replace the currently operating École Whitehorse Elementary School (EWES) with a new facility. The proposed new school is intended to accommodate 600 students from Kindergarten to Grade 7, along with 55 staff. Up to 90% of students are expected to be bused to the new school. Kobayashi + Zedda Architects (KZA) retained Associated Engineering to provide civil and traffic engineering input to support the evaluation of three potential site locations under consideration for the new EWES.

The purpose of this memorandum is to provide a high-level, desktop review of civil servicing and site feasibility considerations for three candidate sites. The assessment focuses on qualitative considerations related to site grading and stormwater management, water and sanitary sewer servicing, and high-level traffic and site access characteristics. This review is intended to inform comparative site evaluation and is based on available background information, record drawings, and City of Whitehorse standards.

No traffic impact assessments, infrastructure capacity modeling, detailed grading analyses, or other quantitative evaluations were completed as part of this memorandum. Any requirements for system upgrades, on-site controls, or mitigative measures identified herein would be subject to confirmation through detailed design and further consultation with the City of Whitehorse.

1.1 Site Locations

YG is considering three potential locations for the new École Whitehorse Elementary School:

1. **Lot 5**, the existing EWES site located in downtown Whitehorse;
2. **Unsurveyed Lands** located along Hamilton Boulevard, opposite the Canada Games Centre and adjacent to the Valleyview subdivision; and
3. **Lot 435**, located along the Alaska Highway near the Kopper King subdivision.

For the purposes of this memorandum, these sites are hereafter referred to as the Downtown Site, Valleyview Site, and Kopper King Site, respectively. The approximate locations of the three sites are illustrated on **Figure 1-1** below.

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Figure 1-1 Potential EWES Site Locations

1.2 Design References and Supporting Documents

The following documents and datasets were reviewed and referenced as part of this high-level desktop assessment:

- City of Whitehorse, *Standard Servicing Manual* (current edition)
- City of Whitehorse, *2003 Water and Sewer Study* (Stantec, 2003)
- City of Whitehorse, Water Distribution System Capacity Analysis – Technical Memorandum No. 6 (GeoAdvice, 2024)
- Available City of Whitehorse utility record drawings and GIS data
- City of Whitehorse GIS topographic contour data (accessed March 2026)
- Publicly available aerial imagery and mapping

These documents were used to inform high-level observations related to existing infrastructure, servicing capacity, topography, and drainage characteristics. No field investigations, subsurface testing, or infrastructure condition or capacity assessments were completed as part of this review.

2 SITE GRADING AND STORMWATER

The sections below describe existing site topography, drainage characteristics, and anticipated approaches to site grading and stormwater management for each of the proposed sites. This assessment has been completed to identify high-level grading feasibility, drainage constraints, and stormwater management considerations based on available lidar infrastructure records, and stormwater best management practices.

2.1 Downtown Site

The Downtown Site is generally flat with positive drainage away from the existing EWES. Surface runoff is currently directed toward the surrounding roadways, including Black Street, 3rd Avenue, and 4th Avenue. Roadway profiles convey runoff toward catch basins located at the intersections of Black Street with both 4th Avenue and 3rd Avenue, where stormwater enters the existing underground storm sewer system. No significant topographic constraints are anticipated that would preclude redevelopment of the site.

Site grading for the proposed EWES is anticipated to be achievable through moderate regrading to establish positive drainage away from the new building footprint and toward adjacent streets, and ultimately to the underground storm infrastructure. Finished floor elevations will need to be coordinated with surrounding roadway elevations to maintain proper drainage, accessibility, and consistency with surrounding developments. Earthworks are expected to be modest, and no significant cut or fill is anticipated given the relatively level nature of the site.

Due to the presence of existing underground storm sewer infrastructure adjacent to the site, there is an opportunity, if required, to install an internal underground storm sewer collection system connecting to the municipal system. Given the scale of the development and the City's requirement for an oil-grit separator (or equivalent stormwater treatment device) for developments with more than 40 parking spaces, the City may prefer or require direct discharge to the underground storm sewer network. While the proposed development represents a redevelopment of the site for the same land use and overall changes in runoff volumes are expected to be minimal, the original storm sewer system and school design would not have accounted for modern stormwater design standards that incorporate climate change impacts, typically requiring design flows approximately 35% greater than historical values. As a result, the existing storm sewer system is anticipated to be undersized under current design criteria, although its capacity is presently unknown. Any change in stormwater runoff will primarily depend on the final site layout and associated impervious surface coverage. Stormwater management requirements, if any, will be confirmed during detailed design in coordination with the City of Whitehorse.

Temporary drainage and erosion and sediment control measures will be required during construction and will be developed as part of the construction documents. Overall, no grading or stormwater management constraints are anticipated that would impact the feasibility of developing the Downtown Site.

2.2 Valleyview Site

The Valleyview Site is characterized by gently undulating terrain that generally slopes from south to north toward Hamilton Boulevard and the adjacent roadside ditching. Site elevations vary by approximately 5 m, with the highest elevations located along the southern perimeter of the property. Existing drainage is conveyed primarily via surface runoff to roadside ditches along Hamilton Boulevard and the Valley View Drive alleyway, which ultimately discharge to an underground storm sewer system via a catch basin located approximately 300 m to the north at the intersection of Hamilton Boulevard and the Alaska Highway.

Site grading for the proposed EWES is anticipated to require moderate regrading and site leveling to establish positive drainage away from the building footprint and toward adjacent roadside drainage features. Finished floor elevations will need to be coordinated with existing roadway grades, ditch elevations, and natural ground elevations at property boundaries to ensure adequate drainage, accessibility, and compatibility with surrounding infrastructure and properties. The roadside ditching along Hamilton Boulevard is more developed and is anticipated to have greater hydraulic capacity than the ditching within the Valley View Drive alleyway; therefore, it is anticipated that the majority of site runoff would be directed toward the Hamilton Boulevard ditch system, however this would be determined during detailed design.

The triangular lot configuration and relatively limited parcel size may constrain site layout flexibility and present challenges in accommodating grading and stormwater management features within the available footprint. However, the depth and configuration of the existing roadside ditching along Hamilton Boulevard may allow for the construction of an internal underground storm sewer collection system discharging to the ditch, if required, which would provide increased flexibility for site drainage. Given the City's requirement for an oil-grit separator (or equivalent stormwater treatment device) for developments with more than 40 parking spaces, an internal underground collection system may be preferred or potentially required pending the final site layout.

The capacity of the downstream underground storm sewer system is currently unknown and will require confirmation during detailed design. Redevelopment of the site will introduce additional impervious surfaces and result in increased runoff volumes and peak flows to the catch basin compared to existing forested conditions. Depending on downstream capacity, final site layout, impervious coverage, and City of Whitehorse requirements, on-site stormwater management measures such as catch basins or minor detention features will be required. Temporary erosion and sediment control measures will be required during construction and will be addressed in the construction documentation. Overall, grading and stormwater management considerations are not anticipated to pose significant constraints to development feasibility at the Valleyview Site.

2.3 Kopper King Site

The Kopper King Site encompasses an area of approximately 25 ha and is characterized by significant topographic variation, with site elevations varying by 40 m and localized grades of up to 40 percent. The site includes localized depressions and hills, but generally drains toward the northeast and lies within the McIntyre Creek catchment area. The site is fully forested, which reduces existing runoff volumes. During snowmelt and large rainfall events, runoff is anticipated to collect in localized depressions and rely primarily on infiltration and evaporation for disposal under existing conditions. No storm sewer infrastructure is present within or adjacent to the site.

The portion of the site most conducive to development without substantial earthworks is approximately 5 ha, in the southwest corner of the site near the Alaska Highway, where elevations only vary by 6 m. While generally suitable for development, this area includes a localized knoll and a shallow depression. Based on available topographic information, a portion of the Alaska Highway ditch currently drains into this depression under existing conditions.

Site grading for the proposed EWES is anticipated to require more extensive earthworks compared to the Downtown and Valleyview sites. More significant grading and earthworks will be required to establish a suitably sized and level site conducive for a school. The finished floor elevation is anticipated to governed by gravity sanitary servicing. Subject to confirmation of material suitability, existing onsite material, including the localized knoll, may be reworked and redistributed to reduce the need for fill import or export; however, this approach would be confirmed through geotechnical investigation and detailed design.

Given the absence of existing storm sewer infrastructure, drainage from the Alaska Highway ditch onto the site, and steep slopes between the developable area and downstream drainage routes, stormwater management at the Kopper King Site is anticipated to be more complex than at the other sites. Concentrated runoff over steep slopes will increase erosion risk during major storm events, while increased runoff volumes and frequencies directed toward existing depressions could exceed infiltration and evaporation rates, potentially resulting in prolonged or permanent ponding. As the site is located within the McIntyre Creek watershed, additional environmental controls, above the City's requirements, may also be required. Accordingly, stormwater management is anticipated to require on-site controls and treatment measures to manage runoff rates, provide energy dissipation, and improve runoff quality prior to discharge. Downstream conveyance improvements may also be more likely to be required relative to the other sites, however this would be determined during detailed design.

While the grading and stormwater challenges identified at the Kopper King Site are considered manageable from a technical perspective, they are anticipated to require a greater degree of infrastructure, earthworks, and stormwater controls compared to the Downtown and Valleyview sites. Temporary erosion and sediment control measures will be required during construction and will be addressed in the construction documentation. Overall, although grading and stormwater management considerations at the Kopper King Site are more complex, they are not anticipated to preclude development feasibility of the proposed EWES, subject to detailed design and further investigation.

3 WATER SERVICING

The sections below describe the existing water infrastructure adjacent to each of the three identified sites, anticipated water servicing connection points, and other general considerations related to water servicing. The capacity of the water distribution system to service the proposed EWES were assessed with reference to the *City of Whitehorse Water Distribution System Capacity Analysis – Technical Memorandum #6* (WDSCA Memo) prepared by GeoAdvice. In accordance with the City of Whitehorse Standard Servicing Manual, a fire flow of 225 L/s is assumed to be required to provide adequate fire protection for an institutional building.

3.1 Downtown Site

There are several existing watermains located directly adjacent to the proposed site. These include a 250 mm diameter ductile iron pipe along Black Street, a 350 mm diameter asbestos cement pipe along 4th Avenue, and a 150 mm diameter asbestos cement pipe along 3rd Avenue. In addition, there is a 250 mm diameter private service line running parallel to

the north property line that services the Qwanlin Mall. It is understood that the current EWES is serviced from the 350 mm diameter main along 4th Avenue. Hydrants are located at approximately each corner of the existing lot.

The WDSCA Memo indicates that under both existing conditions and theoretical future conditions, available fire flow along 4th Avenue and Black Street will greatly exceed the required 225 L/s. However, the hydrant located at the end of 3rd Avenue is estimated to have insufficient fire flow under existing conditions. As a result, the Water Memo recommends upgrading this pipe to 200 mm in diameter and connecting it to the 250 mm diameter private service line that services the Qwanlin Mall.

Multiple mains are available to provide opportunities for water servicing. It is anticipated that water servicing for the proposed development would branch off Black Street or 3rd Avenue, given the expected location behind the existing EWES. Since the new EWES will generally replace the existing EWES water demand, no concerns are anticipated with respect to overall water servicing capacity.

Existing hydrant coverage may be sufficient for the proposed development; however, this will need to be confirmed during detailed design once the site layout is finalized. If the hydrant along 3rd Avenue is relied upon for fire protection for the school, an upgrade to that watermain may be required.

3.2 Valleyview Site

There are existing watermains located directly west and south of the proposed site. A 350 mm diameter ductile iron watermain runs parallel to the south boundary of the site within an easement. Another 350 mm diameter ductile iron watermain runs parallel to Hamilton Boulevard along the west side of the site. The nearest existing hydrants are located either across Hamilton Boulevard or along Valley View Drive, which are not in close proximity to the site.

Due to the distance to existing hydrants, one or more new hydrants will need to be installed closer to the site. These hydrants could be located along the south property line or integrated into the internal water distribution network, depending on the final site layout and servicing strategy.

The WDSCA Memo indicates that under both existing conditions and projected 2040 theoretical conditions, available fire flow along Hamilton Boulevard and within the south easement will exceed the required 225 L/s. As a result, no concerns are anticipated with respect to meeting either fire flow requirements or domestic water demands.

Water servicing for the proposed development is anticipated to be provided from either Hamilton Boulevard or the existing watermain located to the south of the site. As noted above, additional hydrants will be required closer to the site and will be addressed during detailed design.

3.3 Kopper King Site

A 250 mm diameter ductile iron watermain runs parallel to the west side of the proposed project site and currently provides water service to the Kopper King Subdivision located across the Alaska Highway. The closest existing hydrant is situated on the opposite side of the highway within the subdivision. As a result, a new hydrant(s) will need to be installed on or adjacent to the proposed site to provide adequate fire protection.

The WDSCA Memo indicates that under both existing conditions and projected 2040 theoretical conditions, the available fire flow at the nearest hydrant on Prospector Road in the Kopper King Subdivision falls below the required threshold for institutional buildings. It is important to note that the Kopper King Subdivision is at a higher elevation than the proposed site, and therefore marginal improvements in fire flow would be expected at the project location. It is understood that the City is currently reviewing and exploring options for system upgrades to increase available fire flow; however, the timeline for such improvements is unknown. It is recommended that the City be engaged early if the Kopper King site becomes the preferred location for the new EWES.

Water servicing for the proposed development would be provided by extending a service line from the adjacent watermain. Additional hydrants would need to be installed to meet fire protection requirements, and their locations would be confirmed during detailed design.

4 SEWER SERVICING

The sections below describe the existing sanitary sewer infrastructure adjacent to each site, anticipated sewer servicing connection points, and other general considerations related to sanitary servicing. The capacity of the City of Whitehorse sanitary sewer system to service the proposed EWES was assessed with reference to the *City of Whitehorse 2003 Water and Sewer Study* (Sewer Study) prepared by Stantec.

4.1 Downtown Site

There are several existing sanitary sewer mains located directly adjacent to the proposed site. A 600 mm diameter ductile iron sewer main runs along Black Street at an approximate depth of 4.5 m and functions as a primary trunk sewer. Along 4th Avenue, there is an existing 200 mm diameter asbestos cement sewer main, while a 150 mm diameter asbestos cement sewer main is located along 3rd Avenue. It is understood that the existing EWES is currently serviced from the sanitary sewer main along 4th Avenue, which ultimately discharges to the Black Street trunk sewer.

The sanitary sewer along Black Street was upgraded in 2007 in accordance with the recommendations of the 2003 Water and Sewer Study and is therefore assumed to have sufficient capacity to accommodate the existing and future EWES. The sanitary flow generated by the new EWES is anticipated to generally replace the flow generated by the existing EWES, and as a result, no significant impacts or changes to the overall sanitary sewer system are anticipated.

Sanitary servicing for the proposed development is anticipated to be provided by a direct connection to the sewer main along Black Street. Alternatively, a connection could be made to the existing sewer along 3rd Avenue, which ultimately discharges to the Black Street trunk sewer. If the 3rd Avenue sewer is utilized, an upgrade to that sewer main will be required due to its smaller diameter. The final servicing approach and connection location would be confirmed during detailed design and will depend on the finalized site layout and servicing strategy.

4.2 Valleyview Site

A 600 mm diameter ductile iron sanitary sewer trunk is located within the southbound lanes of Hamilton Boulevard, west of the proposed site. This sewer functions as a major trunk line servicing the Copper Ridge and McIntyre neighbourhoods, as well as the Canada Games Centre. Record drawings indicate that the sewer main has approximately 4.0 m of cover below the roadway centerline.

Downstream of the proposed site, the sanitary sewer trunk continues to the Marwell Lift Station, collecting flows from the Takhini, Kopper King, Range Point, and Marwell subdivisions. The 2003 Water and Sewer Study identified sections of the downstream trunk sewer along Range Road and Tlingit Street as exceeding capacity at full buildout, while the remaining downstream trunk sections were identified as operating at less than 80 percent of capacity at full buildout. Since completion of the study, the City has undertaken major capacity upgrades to address the sections previously identified as constrained. Based on these upgrades and the findings of the 2003 study at full buildout, it is anticipated that the downstream sanitary sewer system will have sufficient capacity to service the proposed EWES.

The existing EWES currently discharges to the Marwell Lift Station via Lift Station No. 1. As the proposed EWES is anticipated to generally replace the sanitary flows generated by the existing facility, no significant impacts or changes to the operation or capacity of the Marwell Lift Station are anticipated.

Sanitary servicing for the proposed development is anticipated to be extended from Hamilton Boulevard. The exact tie-in location will be confirmed during detailed design once the site layout and building location are finalized. As Hamilton Boulevard is a major arterial roadway and the sanitary trunk is located within the southbound lanes, increased traffic management measures will be required during construction. While this does not impact the overall feasibility of servicing, it may result in increased construction complexity and marginally higher servicing costs.

The proposed sanitary service connection would cross existing roadside ditching adjacent to Hamilton Boulevard, which may result in cover less than the minimum required by the City of Whitehorse Standard Servicing Manual. This condition would be confirmed during detailed design following confirmation of the service alignment and tie-in location and could be mitigated through the use of insulation if required.

4.3 Kopper King Site

An existing 250 mm diameter asbestos cement sanitary sewer is located within the south ditch of the Alaska Highway adjacent to the proposed site. This sewer main services the Kopper King Subdivision and has no upstream development

contributing flows beyond the subdivision. A sanitary sewer stub was installed across the Alaska Highway near Prospector Road in 1988 to accommodate potential future development on the north side of the highway. Record drawings indicate that this stub is a 350 mm diameter ductile iron pipe with approximately 5.0 m of cover; however, City GIS records identify the crossing as a 250 mm diameter asbestos cement pipe. The stub terminates at a manhole located on the north side of the highway ditch and has likely not been utilized since installation. Given that the highway crossing has not been used for approximately 40 years and there is uncertainty regarding the pipe material and diameter, it is recommended that additional investigation be undertaken if this site is preferred to confirm the condition, diameter, and invert elevations of the existing sewer crossing.

The sanitary sewer servicing the Kopper King Subdivision continues south along the Alaska Highway through the Takhini neighbourhood and ultimately connects to the 600 mm diameter sanitary trunk located along Range Road, which conveys flows to the Marwell Lift Station. This is the same downstream trunk that services the Valleyview site. The 2003 Water and Sewer Study identified a 120 m section of sanitary sewer within the Takhini neighbourhood as exceeding capacity at full buildout of the contributing catchment, while the remaining sewer sections between Kopper King and Range Road were identified as operating at less than 80 percent of capacity at full buildout. The study recommended upgrading this constrained section from a 150 mm diameter pipe to a 200 mm diameter pipe. Since completion of the study, the City has upgraded this section to a 250 mm diameter sewer. Based on these upgrades and the findings of the 2003 study at full buildout, it is anticipated that the downstream sanitary sewer system will have sufficient capacity to service the proposed EWES.

Sanitary servicing for the proposed EWES is anticipated to be provided by connecting to the existing manhole north of the Alaska Highway via the existing sewer crossing. Based on available record information, it appears that minimum pipe cover requirements in accordance with the City of Whitehorse Standard Servicing Manual can be achieved for the proposed service connection; however, this will be dependent on the finalized location and elevation of the school within the parcel. As noted above, confirmation of the condition, material, and invert elevation of the existing manhole and highway crossing is recommended. If a new crossing is required, this will result in additional costs.

Due to favorable topography to the west of the proposed site, development of the school may facilitate or encourage future development of adjacent lands. As a result, consideration could be given during detailed design to upsizing the sanitary service connection to accommodate potential future upstream development, subject to confirmation of downstream capacity and City requirements.

5 TRAFFIC IMPACT & SITE ACCESS

The following sections provide a high-level qualitative review of traffic considerations for each of the three potential school sites. This assessment focuses on the interaction between each site and the surrounding transportation network, including roadway context, access flexibility, active transportation and transit connectivity, and anticipated access or intersection upgrade requirements.

This review does not consider on-site circulation details such as bus loops, parent drop-off areas, one-way circulation, or accessible stalls, and it is assumed all these requirements would be incorporated in more detailed site plan design. No traffic counts, school travel data, or intersection capacity analyses were completed as part of this assessment. Any potential roadway improvements or upgrades identified below would require confirmation through a detailed traffic impact assessment (TIA) and consultation with the City of Whitehorse.

5.1 Downtown Site

5.1.1 Surrounding Road Network and Impacts

The Downtown site is bordered by 3rd Avenue to the east, Black Street to the south, and 4th Avenue to the west, all which function primarily as local and collector roadways within the downtown street grid. The surrounding network currently accommodates school-related traffic associated with the existing EWES.

From a network perspective, the downtown grid provides multiple route options; however, street widths, curbside activity, and constrained right-of-way limit operational flexibility during peak periods. A notable constraint is that 3rd Avenue dead-ends near the site, which reduces connectivity and limits the practical use of this frontage for site access. While the site benefits from multiple frontages, opportunities to modify access arrangements are constrained by adjacent land uses and existing development.

A key consideration unique to this site is that the existing school is anticipated to remain operational while the new school is constructed on-site. From a traffic standpoint, this presents challenges related to construction vehicle access operating concurrently with school traffic and high pedestrian volumes within a constrained downtown environment. Temporary access restrictions, lane closures, or traffic management measures would likely be required during construction, making construction traffic management more complex at this location relative to the other sites.

After buildout, traffic impacts for this location are likely to remain similar to current levels with the large percentage of students bussed in.

5.1.2 Alternative Transportation

The site is connected to the wider cycling network through painted bike lanes on 4th Avenue, with connections to Two Mile Hill Road in the north and Robert Service Way to the south. There is strong pedestrian connectivity throughout the downtown area.

For transit, within a roughly 5 minute walk, bus stops on 2nd Avenue and 4th Avenue provide access to routes 101, 201, 202, 301, 302, and 401. Outside of central Whitehorse, these six routes provide access to the Lobird, Copper Ridge, Granger, Hillcrest, McIntyre, Valleyview, Takhini, Range Point, Porter Creek, Whistle Bend, Taylor, and Crestview neighbourhoods.

5.1.3 Potential Upgrades

Significant intersection capacity upgrades are not anticipated to be required solely as a result of redevelopment of the site; however, localized improvements may be needed to address pedestrian safety, accessibility, and construction staging requirements. Any modifications to site access or adjacent intersections would need to be reviewed in detail once a site layout is developed and school operations are confirmed.

5.2 Valleyview Site

5.2.1 Surrounding Road Network

The Valleyview is located along Hamilton Boulevard, opposite the Canada Games Centre. Hamilton Boulevard and Two Mile Hill Road function as arterial roadways, which are generally better suited to accommodate higher traffic volumes associated with institutional land uses such as schools.

Access to the site is anticipated to be provided from Hamilton Boulevard, with proximity to an existing signalized intersection currently serving the Canada Games Centre. This provides a controlled access environment and greater predictability for accommodating school traffic. While additional access legs or modifications to the existing signalized intersection would likely be required, the arterial context and existing signalization reduce the likelihood of significant off-site impacts.

5.2.2 Alternative Transportation

Active transportation connectivity is provided by sidewalks and a multi-use path along the west side of Hamilton Boulevard. The signalized intersection at the Canada Games Centre provides a controlled pedestrian crossing of Hamilton Boulevard, enabling connections to nearby neighbourhoods and facilities.

Transit service along Hamilton Boulevard provides access to multiple areas of Whitehorse via routes 101, 202, 301, and 402. These four routes grant access to the downtown area and the Copper Ridge, Granger, Hillcrest, McIntyre, Valleyview, Takhini, Range Point, Porter Creek, Whistle Bend, Taylor, and Crestview neighbourhoods.

5.2.3 Potential Upgrades

This location would require upgrading the signalized intersection on Hamilton Boulevard that serves the Canada Games Centre with an additional approach to accommodate the new site access. These upgrades are expected to be manageable within the existing traffic network, but confirmation through detailed intersection capacity analysis will confirm acceptable operations with future traffic growth. The extent of geometric improvements will depend on access configuration and school site design.

5.3 Kopper King Site

5.3.1 Surrounding Road Network

The Kopper King site is bordered by the Alaska Highway to the south. Primary site access is possible at the intersection of Prospector Road and the Alaska Highway. This configuration supports school-related traffic accessing the site via the highway and minimizes impacts on local residential streets.

The site could support a second, emergency access to University Drive. This access would not be for school traffic but provide access redundancy for the school and surrounding University area.

5.3.2 Alternative Transportation

Active transportation connectivity is available via unorganized trails located behind the site; however, direct active transportation connections along the Alaska Highway are limited by vehicle speeds, traffic volumes, and user comfort. The Yukon Government completed an Alaska Highway Trail Study in 2025, which included the review of extending an active transportation route from the Kopper King Subdivision to the existing trail network near Two Mile Hill. The status of this project is unknown, however.

Limited transit service is present on the Alaska Highway with a bus stop for Route 202 at the intersection of Prospector Road and Alaska Highway. This route provides access to the downtown area, and the Valleyview, Porter Creek and Crestview neighbourhoods.

5.3.3 Potential Upgrades

The intersection at Prospector Road and Alaska Highway will likely require signalization and geometric improvements to safety accommodate the additional traffic generated by the school. Detailed traffic analysis would be required if the site is selected to confirm access requirements and the scope of any necessary improvements.

For site access, it is assumed the intersection at Prospector Road and Alaska Highway will be sufficient, but exact layout and orientation will depend on site plans will have to be confirmed should this site be selected.

6 SUMMARY

The following section provides a consolidated summary of the anticipated feasibility of grading, stormwater management, water servicing, sanitary sewer servicing, and traffic impacts for each of the three proposed sites. The summaries are based on the high-level assessments presented in the preceding sections of this memorandum and are intended to support comparative evaluation of the sites from an overall civil servicing and earthworks perspective.

6.1 Downtown Site

The Downtown Site presents the fewest constraints from a grading and servicing perspective. The site is generally flat, with established positive drainage toward adjacent roadways and existing underground storm sewer infrastructure readily available for connection. Only modest regrading is anticipated to achieve positive drainage and appropriate finished floor elevations, with no significant cut or fill requirements. Stormwater management challenges are generally limited; however, despite the redevelopment representing the same land use with marginal changes to runoff volumes, the existing storm sewer system was likely not designed to modern standards that account for climate change and therefore may be undersized. A direct connection to the municipal system incorporating an oil-grit separator may be required depending on final parking counts and city requirements . Water servicing is well supported by multiple adjacent watermains with sufficient capacity to meet domestic and fire flow requirements, subject to confirmation of hydrant coverage and potential localized upgrades along 3rd Avenue. Sanitary sewer servicing is similarly robust, with direct access to an upgraded trunk sewer system along Black Street that is anticipated to have sufficient capacity.

Overall, grading, stormwater, water, and sewer servicing considerations are not anticipated to pose any significant material constraints to redevelopment of the Downtown Site.

The Downtown Site provides the strongest pedestrian and transit connectivity. Because the EWES is currently in operation on the site, traffic impacts from a new school would be limited to the incremental increase in new traffic. Traffic challenges during construction may be experienced due to the constrained site and existing downtown traffic.

6.2 Valleyview Site

The Valleyview Site is generally feasible from a civil servicing and grading standpoint, with moderate complexity relative to the Downtown Site. Gently undulating topography will require moderate regrading and site leveling to establish appropriate building grades and positive drainage toward adjacent roadside ditches, primarily along Hamilton Boulevard. While stormwater management will require careful consideration due to increased impervious area relative to existing conditions and reliance on ditch conveyance, suitable drainage solutions are anticipated to be achievable through a combination of surface grading and potential internal storm sewer infrastructure, subject to downstream capacity confirmation. Water servicing is readily available from adjacent high-capacity mains and is expected to meet both domestic and fire flow requirements, although new hydrants will need to be installed closer to the site. Sanitary servicing can be provided from the nearby trunk sewer along Hamilton Boulevard, with adequate downstream capacity anticipated based on prior system upgrades. While the triangular site configuration and arterial roadway frontage may increase servicing coordination and construction complexity, overall grading and servicing conditions are not expected to preclude development of the Valleyview Site.

The Valleyview Site is well positioned within the arterial road network adjacent to Hamilton Boulevard. The existing signalization of the intersection provides a controlled access to the school site, as well as controlled crossings for pedestrian and cyclists. While intersection modifications would likely be required, these upgrades are anticipated to be manageable within the existing transportation framework.

6.3 Kopper King Site

The Kopper King Site presents the greatest servicing and grading complexity of the three sites, though development remains technically feasible. Significant topographic variation, steep localized slopes, and the absence of existing storm sewer infrastructure will require more extensive grading, earthworks, and carefully planned stormwater management measures. Development of the preferred sub-area will necessitate regrading to create a suitable building area, with finished floor elevations governed primarily by gravity sanitary servicing constraints. Stormwater management will be more involved due to steep slopes, drainage from the Alaska Highway ditch, potential ponding in onsite depressions, erosion risk, and the site's location within the McIntyre Creek watershed, likely necessitating on-site controls, additional treatment requirements, and possibly downstream conveyance improvements. Water servicing can be provided from the adjacent distribution system; however, existing fire flow capacity is marginal and will require further coordination with the City and potentially system upgrades or mitigation measures. Sanitary servicing is anticipated to be feasible via the existing highway crossing, subject to confirmation of pipe condition and elevation, with downstream capacity expected to be sufficient following prior system upgrades. While the Kopper King Site is expected to require higher capital investment and design effort for grading and servicing, these challenges are not anticipated to preclude development of the proposed EWES, subject to detailed design and further investigation.

Access to the Kopper King Site via the Alaska highway minimizes impacts on roads with lower traffic capacity, however, the highway context results in less accommodations for people walking and biking. Traffic improvements at the intersection, including signalization and/or geometric upgrades are expected to safely accommodate school traffic.

7 CLOSURE

This memo was prepared for the Kobayashi + Zedda Architects to provide civil engineering services in support of reviewing three potential site locations to construct a new École Whitehorse Elementary School. The services provided by Associated Engineering (B.C.) Ltd. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,

Prepared by:



Evan Latos, P.Eng.
Project Engineer



Breanna Jackson, P.Eng.
Transportation Planning Engineer

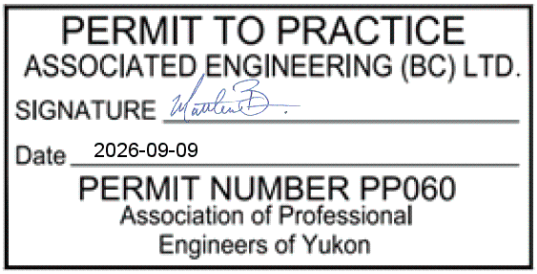
Reviewed by:



Steven Bartsch, P.Eng.
Project Manager



EL/BJ/SB



12.2 COSTING REPORT

COST MANAGEMENT REPORT

EWES Site Assessment Class D Estimate

REPORT NUMBER 1.3
AUGUST 6, 2026

PREPARED FOR:
Kobayashi + Zedda Architects

Suite 300 – 30 East 6th Avenue, Vancouver, BC V5T 1J4
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APPENDICES:

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APPENDIX II	Cost Plan – Site B: Valleyview	2 pages
APPENDIX III	Cost Plan - Site C: Downtown	2 pages
APPENDIX IV	Site Aerial Photos	3 pages

Prepared By	Reviewed By	Date
Willie Yeung	Eldon Lau	8/6/2026

1.0 Introduction

1.1 Instructions Received

This report has been prepared by BTY Group ("BTY") at the request of Kobayashi + Zedda Architects (the "Client").

Kobayashi + Zedda Architects has appointed BTY to provide a Class D estimate developed for the Ecole Whitehorse Elementary School (EWES) Site Assessment project in Whitehorse, Yukon. (the "Project"). The Project delivery model is yet to be determined, therefore, BTY strongly recommends that estimates are prepared at each of the key design milestones. This report has been prepared in accordance with the scope of our Fee Proposal, dated April 22, 2026 and is subject to the terms of that appointment.

Information related to the Project for the purposes of this report was received by BTY on April 7, 2026. Please refer to Section 13.0 for a list of information received in producing this report.

1.2 Report Reliance

This Report is owned by BTY Group, and it is provided for the benefit and sole reliance of the Client. BTY Group, its directors, staff, or agents do not make any express or implied representation or warranty whatsoever as to the factual accuracy of the information provided to us on behalf of the Client, its subcontractors or agents, upon which this Report is based. This Report contains confidential, proprietary information and related intellectual property rights of BTY Group which is licensed on a non-exclusive and limited basis to the Client and the Report may not be reproduced, transferred, copied, shared, or distributed, in whole or in part, to any party, without the express prior written permission of BTY Group.

1.3 Reporting Qualifications

This Report has been prepared based on information provided to us by the Client up to the date of issue of this Report. BTY Group does not accept any liability or accountability for information that has not been provided, or made available to us, at the time of preparing this Report. Any advice, opinions, or recommendations within this Report should be read and relied upon only in the context of the report as a whole. The contents do not provide legal, insurance or tax advice or opinion. Opinions in this report do not advocate for any party and if called upon to give oral or written testimony it will be given on the same assumption.

1.4 Contacts

Should you have any queries regarding the content of this report, please do not hesitate to contact either of the following:

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2.0 Executive Summary

2.1 Report Purpose

The purpose of this report is to provide a realistic estimate of the Project cost based on the information available at the time of writing.

The opinion expressed in this report has been prepared without the benefit of detailed architectural, structural, mechanical and electrical drawings and should, therefore, be considered a Class D estimate. Based on the documents reviewed, our estimate should be correct within a range of approximately +/- 25%.

In order to provide an accurate cost estimate for the Project, BTY Group strongly recommends that a professional Quantity Surveying organization, such as BTY Group, be retained to provide a detailed analysis of any design information produced on behalf of the Client during the remaining stages of design.

2.2 Project Background and Description

The Government of Yukon is preparing to design and construct a new French immersion school in Whitehorse, the Ecole Whitehorse Elementary School (EWES).

Cost estimate for the following three sites is prepared for consideration:

Site A – Kopper King (24.9 Hectares) is a large, multi-faceted shaped lot fronting on the Alaska Highway. The terrain of Site A is highly variable, heavily treed with some wild areas including Mclntyre Creek and the Beaver Pond. The site is well connected to nature trails, the nearby Millenium Train and several gravel access roads.

Site B – Valleyview (2.67 Hectares) is a triangular-shaped lot fronting Hamilton Boulevard across from the Canada Games Centre. The site is unsurveyed and has proximity to the Valleyview residential area and community playground.

Site C – Downtown (1.7 Hectares) is the current location of EWES on 4th Avenue at Black Stret. The site context is urban. While traffic on the road is heavy, the speed is regulated and considered safe.

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3.0 Development Cost Summary

The current estimated cost of the project may be summarized as follows:

	Item	Site A Kopper King	Site B Valleyview	Site C Downtown
A	Land Cost (Excluded)	0	0	0
B	Construction	58,019,600	56,007,100	58,851,600
C	Contingencies	2,901,000	2,800,400	2,942,600
D	Professional Fees	5,221,800	5,040,600	5,296,600
E	Connection Fees & Permits	1,013,800	982,100	926,900
F	Management & Overhead	4,873,600	4,704,600	4,943,400
G	Project Contingency	555,500	536,400	558,400
H	Furnishing, Fittings & Equipment	5,000,000	5,000,000	5,000,000
I	Financing Costs	0	0	0
J	Goods & Services Tax	0	0	0
	Total Project Cost (June 2026 Dollars)	**$77,585,300**	**$75,071,200**	**$78,519,500**
K	Escalation	9,620,600	9,308,800	9,736,400
	Escalated Project Cost (May 2031 Dollars)	**$87,205,900**	**$84,380,000**	**$88,255,900**

Please note that, where zero-dollar values are stated, BTY has excluded these costs and the values should be carried in a separate budget (if applicable).

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4.0 Basis & Assumptions

The construction estimate is based on the following list of assumptions:

1. Foundations for Site C is assumed to be conventional shallow strip and pad footings with perimeter foundation walls
2. Replace unsuitable soil with engineering fill is assumed for Site A and Site B
3. The building will consist of three storeys with steel + mass timber hybrid structure
4. Extensive retaining wall is required for Site A
5. No major environmental issues for sites A & B
6. New traffic intersection with new traffic signals for Site A and Site B
7. No temporary playfield for the existing school at Site C during construction
8. Allocate 3,000 m² for well-designed and safe bus loading area, parent drop-off and teacher parking zone
9. Allocate 3,600 m² for playing field
10. Assume overall developing site area of 20,000 m² for both sites A & B
11. Refer to Appendices I to III cost plan for other assumptions.

Please note that BTY is not qualified to act as design consultant. The assumptions in our estimate should be reviewed and corrected by the design team.

5.0 Exclusions

The construction estimate includes all direct and indirect construction costs derived from the drawings and other information provided by the Consultants, with the exception of the following:

1. Land costs,
2. Financing costs,
3. Legal fees and agreement costs / conditions,
4. Temporary facilities for user groups during construction,
5. Unforeseen ground conditions and associated extras,
6. Phasing of the works and accelerated schedule,
7. Decanting & moving,
8. Costs associated with “LEED” certification,
9. Project commissioning to be carried out by an independent consultant,
10. Erratic market conditions, such as lack of bidders, proprietary specifications,
11. Cost escalation past May 2031.

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6.0 Project Cost Summary

The estimated project cost may be summarized as follows:

	Description		Site A Kopper King ($)	Site B Valleyview ($)	Site C Downtown ($)
A.	**LAND COST**		**$0**	**$0**	**$0**
	A1	Land/Property (Purchase) - excluded	$0	$0	$0
	A2	Land/Property (Lease) - excluded	$0	$0	$0
	A3	Legal Fees - excluded	$0	$0	$0
B.	**CONSTRUCTION**		**$58,019,600**	**$56,007,100**	**$58,851,600**
	B1	Demolition and Hazmat Abatement	$0	$0	$2,611,700
	B2	Building	$49,082,900	$49,082,900	$51,983,700
	B3	Site Development	$8,936,700	$6,924,200	$4,256,200
C.	**HARD COST CONTINGENCIES**		**$2,901,000**	**$2,800,400**	**$2,942,600**
	C1	Design Contingency (included above)	$0	$0	$0
	C2	Post Tender Change Order Contingency	$2,901,000	$2,800,400	$2,942,600
D.	**PROFESSIONAL FEES (9%)**		**$5,221,800**	**$5,040,600**	**$5,296,600**
E.	**CONNECTION FEES & PERMITS**		**$1,013,800**	**$982,100**	**$926,900**
	E1	Rezoning Costs	$100,000	$100,000	$0
	E2	Development Cost Charges	$0	$0	$0
	E3	Building Permits	$304,600	$294,000	$309,000
	E4	Misc. Permits & Levies	$609,200	$588,100	$617,900
F.	**MANAGEMENT & OVERHEAD**		**$4,873,600**	**$4,704,600**	**$4,943,400**
	F1	Project Management Fee	$1,827,600	$1,764,200	$1,853,800
	F2	Owners Planning & Administrative Cost	$1,827,600	$1,764,200	$1,853,800
	F3	Project Insurance	$609,200	$588,100	$617,900
	F4	Other Overheads	$609,200	$588,100	$617,900
G.	**PROJECT CONTINGENCY (Items D to F) - 5%**		**$555,500**	**$536,400**	**$558,400**
	NET PROJECT COST		**$72,585,300**	**$70,071,200**	**$73,519,500**
H.	**FURNISHINGS, FITTINGS & EQUIPMENT (Allowance)**		**$5,000,000**	**$5,000,000**	**$5,000,000**
I.	**FINANCING COSTS (EXCLUDED)**		**$0**	**$0**	**$0**
J.	**GST (EXCLUDED)**		**$0**	**$0**	**$0**
	TOTAL PROJECT COST (2026 Dollars)		**$77,585,300**	**$75,071,200**	**$78,519,500**
K.	**ESCALATION ALLOWANCE (12.4%)**		**$9,620,600**	**$9,308,800**	**$9,736,400**
	ESCALATED PROJECT COST (2031 Dollars)		**$87,205,900**	**$84,380,000**	**$88,255,900**

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7.0 Areas

The school is programmed to be 7,041 m² in gross floor area.

8.0 Taxes

The estimate excludes the Goods & Services Tax (G.S.T.).

9.0 Project Schedule & Escalation

To identify and qualify the escalation allowance for this project, BTY was provided the following schedule:

Activity	Start	Finish	Duration
Construction	Nov-01-2028	May-30-2031	31 months

Based on the above schedule, the mid-point of construction for the project is projected to be February 2030, which is 45 months from the date of this estimate. On this basis, BTY has calculated the escalation for this project to be 12.4%.

Our current projected escalation rates are shown below. If there is slippage in the schedule, further escalation based on the projected escalation rate per annum should be included in the estimate.

	2026	2027	2028 +
Current BTY Group Forecast	3% - 5%	2% - 4%	2% - 4%

10.0 Pricing

This estimate has been priced at second quarter 2026 rates assuming a normal market. The unit rates utilized are considered appropriate for a project of this type, bid under a Design-Bid-Build model in an open market, with a minimum of five (5) bids, supported by a sufficient number of sub-contractors to ensure competitiveness.

The estimate allows for labour, material, equipment and other input costs at current rates and levels of productivity. It does not consider extraordinary market conditions, where bidders may be few and may include in their tenders' disproportionate contingencies and profit margins.

A separate allowance has not been included in the estimate to cover Canada's response to potential tariffs that may be imposed by the U.S. Government. Design, escalation and construction contingencies may also be adjusted to reflect the increased risk associated with the current environment. BTY will continue to monitor the construction market and adjust estimates to reflect current pricing.

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11.0 Risk Mitigation

BTY Group recommends that the Owner, Project Manager and Design Team carefully review this document, including exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to BTY Group within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that BTY Group design and propose a cost management framework for implementation. This framework would require that a series of further estimates be undertaken at key design stage milestones and a final update estimate be produced which is representative of the completed tender documents, project delivery model and schedule. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. BTY Group is unable to reconcile bid results to any estimate not produced from bid documents including all addenda.

12.0 Contingencies

12.1 Design Contingency

A design contingency of Fifteen Percent (15%) has been included in the estimate to cover modifications to the program, drawings and specifications during the design.

12.2 Construction Contingency

An allowance of Five Percent (5%) has been included in the estimate for changes occurring during the construction period of the project. This amount may be expended due to site conditions or if there are modifications to the drawings and specifications.

12.3 Project Contingency

An allowance of Five Percent (5%) of the soft costs has been included in the project cost plan to cover changes to non-construction items.

13.0 Documents Reviewed

The list below confirms the information that we have reviewed in order to prepare our opinion contained within this report:

Description		Revised Date
Report		
	Ecole Whitehorse Elementary School Site Assessment Report	March 31, 2026
	Project Schedule	July 31, 2026

This report has been prepared at the request of Kobayashi + Zedda Architects and is the exclusive property of BTY Group. The information must be treated as confidential and not to be disclosed, reproduced or permitted to be disclosed to any party without the prior consent of BTY Group.

COST MANAGEMENT REPORT

EWES Site Assessment

APPENDICES

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APPENDIX II	Cost Plan – Site B: Valleyview	2 pages
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APPENDIX I

Cost Plan – Site A: Kopper King

2 PAGES

A1. Construction

Site A - Kopper King	Qty	Unit	Rate	Amt	Sub-Total
B1 Demolition and Hazmat Abatement					
Demolition					
- Remove existing buildings		not req'd			
Hazmat Abatement / Site Remediation					
- Allowance for hazmat abatement		not req'd			
Sub-Total					
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%			
Total B1 Demolition and Hazmat Abatement					
B2 Building					
Main building including	7,041	m²	6,900.00	48,582,900	
- Footing foundations					
- Crawl space below grade					
- Steel + mass timber structure					
- Exterior metal cladding with wood studs backup					
- Aluminum / Fibreglass triple-glazed windows					
- Exterior doors (allowance)					
- Metal roof covering: main roof and projection					
- Allowance for canopy & projection					
- Interior fit-out					
- Hydraulic elevator					
- Plumbing & drainage					
- Fire protection					
- HVAC & controls					
- Service & distribution					
- Lighting, devices & heating					
- Systems & ancillaries					
Replace unsuitable soil with engineering fill (say 1m depth)	1	sum	500,000.00	500,000	
Allowance for phased construction - staging, temp. proection etc.		not req'd			
Sub-Total					**$49,082,900**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		incl.			
Total B2 Building	**7,041**	**m²**	**6,971.01**		**$49,082,900**

A1. Construction

Site A - Kopper King	Qty	Unit	Rate	Amt	Sub-Total
B3 Site Development					
Site Preparation					
- Remove existing trees	20,000	m²	30.00	600,000	
- Allowance for site preparation, general regrade	20,000	m²	35.00	700,000	
- Allowance for retaining wall requirement	1	sum	1,000,000.00	1,000,000	
Hard Surface	1	sum	2,330,000.00	2,330,000	
- Bus loading area, parent drop-off & teacher parking					
- Playing field					
- Playgrounds, sidewalk, etc.					
Site Improvement	1	sum	300,000.00	300,000	
- Allowance for exterior signage					
- Allowance for playground equipment					
- Allowance for site furnishing					
Soft Landscaping	1	sum	461,000.00	461,000	
- Allowance for soft landscaping					
- Allow for trees					
On-Site Services					
- Mechanical services	1	sum	380,000.00	380,000	
Storm water connection c/w oil grit seperator					
Water connection					
Sanitary connection					
- Site electrical - site lighting, security	1	sum	150,000.00	150,000	
Off-Site Services					
- Allowance for substantial roadway upgrades and offers comparatively limited walking, cycling, and transit access	1	sum	1,500,000.00	1,500,000	
- Allow to connect to city main for water, storm and sanitary system	1	sum	50,000.00	50,000	
- Allow for new traffic intersection with traffic lights		included			
- Allowance for new dedicated three-phase overhead electrical extensions to the site boundaries, along with new transformer installations	1	sum	300,000.00	300,000	
Sub-Total					**$7,771,000**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%		1,165,700	
Total B3 Site Development	**24,690**	**m²**	**361.96**		**$8,936,700**

APPENDIX II

Cost Plan – Site B: Valleyview

2 PAGES

A1. Construction

Site B - Valleyview	Qty	Unit	Rate	Amt	Sub-Total
B1 Demolition and Hazmat Abatement					
Demolition					
- Remove existing buildings		not req'd			
Hazmat Abatement / Site Remediation					
- Allowance for hazmat abatement		not req'd			
Sub-Total					
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%			
Total B1 Demolition and Hazmat Abatement					
B2 Building					
Main building including	7,041	m²	6,900.00	48,582,900	
- Footing foundations					
- Crawl space below grade					
- Steel + mass timber structure					
- Exterior metal cladding with wood studs backup					
- Aluminum / Fibreglass triple-glazed windows					
- Exterior doors (allowance)					
- Metal roof covering: main roof and projection					
- Allowance for canopy & projection					
- Interior fit-out					
- Hydraulic elevator					
- Plumbing & drainage					
- Fire protection					
- HVAC & controls					
- Service & distribution					
- Lighting, devices & heating					
- Systems & ancillaries					
Replace unsuitable soil with engineering fill (say 1m depth)	1	sum	500,000.00	500,000	
Allowance for phased construction - staging, temp. proection etc.		not req'd			
Sub-Total					**$49,082,900**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		incl.			
Total B2 Building	**7,041**	**m²**	**6,971.01**		**$49,082,900**

A1. Construction

Site B - Valleyview	Qty	Unit	Rate	Amt	Sub-Total
B3 Site Development					
Site Preparation					
- Remove existing trees	20,000	m²	30.00	600,000	
- Allowance for site preparation	20,000	m²	35.00	700,000	
- Allowance for retaining wall requirement		not req'd			
Hard Surface	1	sum	2,330,000.00	2,330,000	
- Bus loading area, parent drop-off & teacher parking					
- Playing field					
- Playgrounds, sidewalk, etc.					
Site Improvement	1	sum	300,000.00	300,000	
- Allowance for exterior signage					
- Allowance for playground equipment					
- Allowance for site furnishing					
Soft Landscaping	1	sum	461,000.00	461,000	
- Allowance for soft landscaping					
- Allow for trees					
On-Site Services					
- Mechanical services - storm water, sewage, water supply	1	sum	380,000.00	380,000	
Storm water connection c/w oil grit seperator					
Water connection					
Sanitary connection					
- Site electrical - site lighting, security	1	sum	150,000.00	150,000	
Off-Site Services					
- Allowance for intersection modifications and an additional access leg	1	sum	750,000.00	750,000	
- Allow to connect to city main for water, storm and sanitary system	1	sum	50,000.00	50,000	
- Allow for new traffic intersection with traffic lights		included			
- Allowance for new dedicated three-phase overhead electrical extensions to the site boundaries, along with new transformer installations	1	sum	300,000.00	300,000	
Sub-Total					**$6,021,000**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%		903,200	
Total B3 Site Development	**24,690**	**m²**	**280.45**		**$6,924,200**

APPENDIX III

Cost Plan - Site C: Downtown

2 PAGES

A1. Construction

Site C - Downtown	Qty	Unit	Rate	Amt	Sub-Total
B1 Demolition and Hazmat Abatement					
Demolition					
- Remove existing concrete buildings	5,884	m²	250.00	1,471,000	
Hazmat Abatement / Site Remediation					
- Allowance for hazmat abatement	1	sum	800,000.00	800,000	
Sub-Total					$2,271,000
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%		340,700	
Total B1 Demolition and Hazmat Abatement					**$2,611,700**
B2 Building					
Main building including	7,041	m²	6,900.00	48,582,900	
- Footing foundations					
- Crawl space below grade					
- Steel + mass timber structure					
- Exterior metal cladding with wood studs backup					
- Aluminum / Fibreglass triple-glazed windows					
- Exterior doors (allowance)					
- Metal roof covering: main roof and projection					
- Allowance for canopy & projection					
- Interior fit-out					
- Hydraulic elevator					
- Plumbing & drainage					
- Fire protection					
- HVAC & controls					
- Service & distribution					
- Lighting, devices & heating					
- Systems & ancillaries					
Extra over for piling foundations		not req'd			
Allowance for phased construction - staging, temp. proection, schedule delay, noise control etc.		7%		3,400,800	
Sub-Total					**$51,983,700**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		incl.			
Total B2 Building	**7,041**	**m²**	**7,383.00**		**$51,983,700**

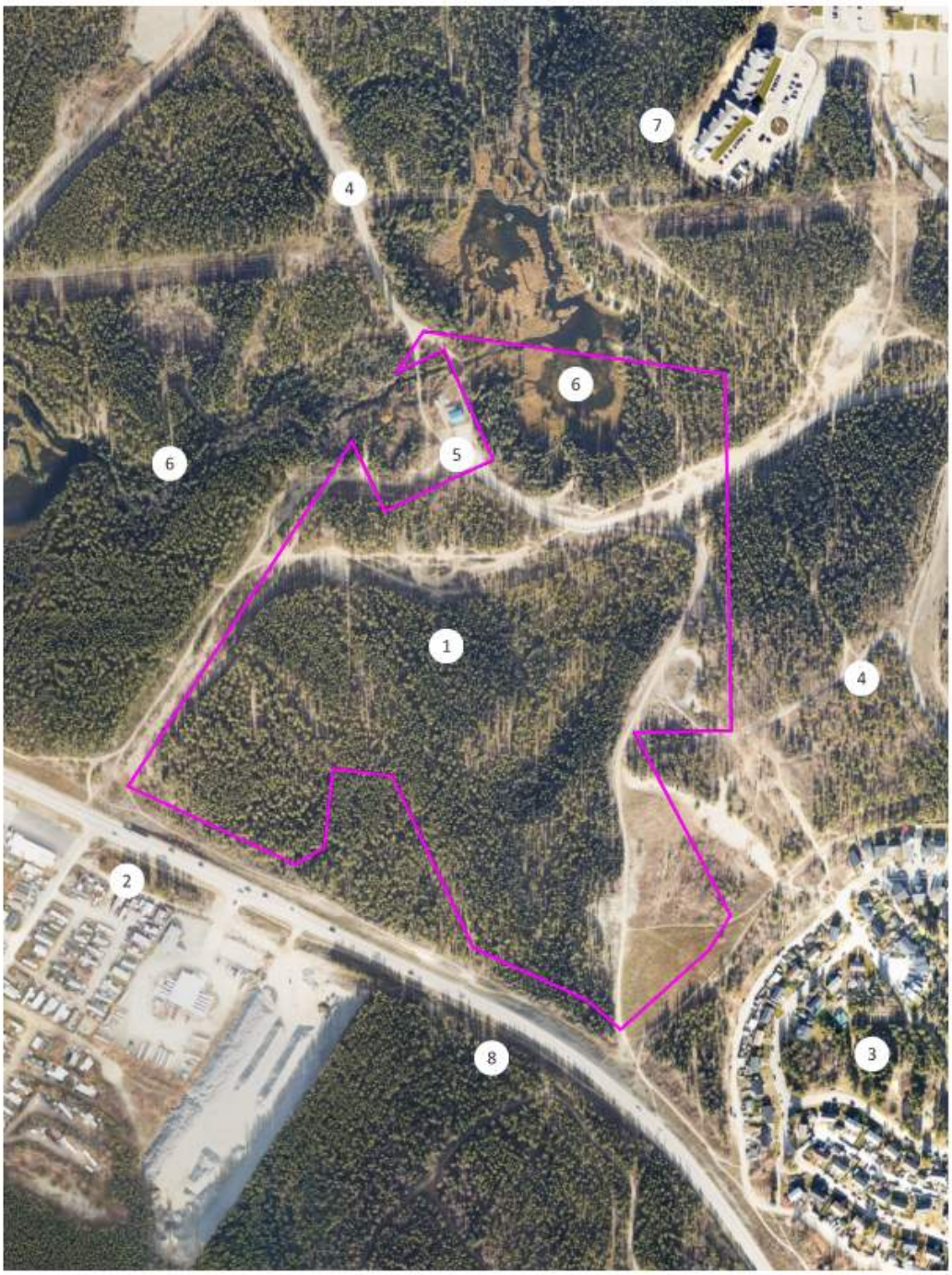
A1. Construction

Site C - Downtown	Qty	Unit	Rate	Amt	Sub-Total
B3 Site Development					
Site Preparation					
- Allowance for site preparation	17,000	m²	30.00	510,000	
- Allowance for retaining wall requirement		not req'd			
Hard Surface	1	sum	2,030,000.00	2,030,000	
- Bus loading area, parent drop-off & teacher parking					
- Playing field					
- Playgrounds, sidewalk, etc.					
Site Improvement	1	sum	300,000.00	300,000	
- Allowance for exterior signage					
- Allowance for playground equipment					
- Allowance for site furnishing					
Soft Landscaping	1	sum	341,000.00	341,000	
- Allowance for soft landscaping					
- Allow for trees					
On-Site Services					
- Mechanical services	1	sum	320,000.00	320,000	
Storm water connection c/w oil grit seperator					
Water connection					
Sanitary connection					
- Site electrical - site lighting, security	1	sum	150,000.00	150,000	
Off-Site Services					
- Allow to connect to city main for water, storm and sanitary system	1	sum	50,000.00	50,000	
- Allowance for new dedicated three-phase overhead electrical extensions to the site boundaries, along with new transformer installations		Not required			
Sub-Total					**$3,701,000**
General Requirements & Fees					
- General Requirements		incl.			
- Fees		incl.			
Design Contingency		15%		555,200	
Total B3 Site Development	**24,690**	**m²**	**172.39**		**$4,256,200**

APPENDIX IV

Site Aerial Photos

3 PAGES



EWES SITE ANALYSIS
KOPPER KING SITE AERIAL PHOTO NTS

1 LOT 435
2 KOPPER KING
3 TAKHINI NORTH NEIGHBOURHOOD
4 WALKING TRAILS
5 McINTYRE PUMP HOUSE
6 McINTYRE CREEK
7 YUKON UNIVERSITY RESIDENCE
8 ALASKA HIGHWAY



EWES SITE ANALYSIS
VALLEYVIEW SITE AERIAL PHOTO NTS

1 UNSURVEYED LOT VALLEYVIEW
2 VALLEYVIEW NEIGHBOURHOOD
3 SUMANIK DRIVE INTERSECTION
4 CANADA GAMES CENTRE
5 MT McINTYRE RECREATION CENTRE
6 ALASKA HIGHWAY INTERSECTION
7 ALASKA HIGHWAY
8 HAMILTON BOULEVARD
9 CANADA POST
10 RANGE ROAD/TWO MILE HILL INTERSECTION
11 TWO MILE HILL/ALASKA HIGHWAY INTERSECTION
12 TAKHINI EAST NEIGHBOURHOOD
13 WATERLINE EASEMENT



EWES SITE ANALYSIS
DOWNTOWN SITE AIR PHOTO NTS

1 ECOLE WHITEHORSE ELEMENTARY SCHOOL
2 4TH AVENUE
3 BLACK STREET
4 3RD AVENUE
5 WHITEHORSE MOTORS
6 WHITEHORSE EMERGENCY SHELTER
7 QWANLIN MALL
8 YUKON CENTRE MALL
9 NVD PLACE
10 NORTHLIGHT INNOVATION



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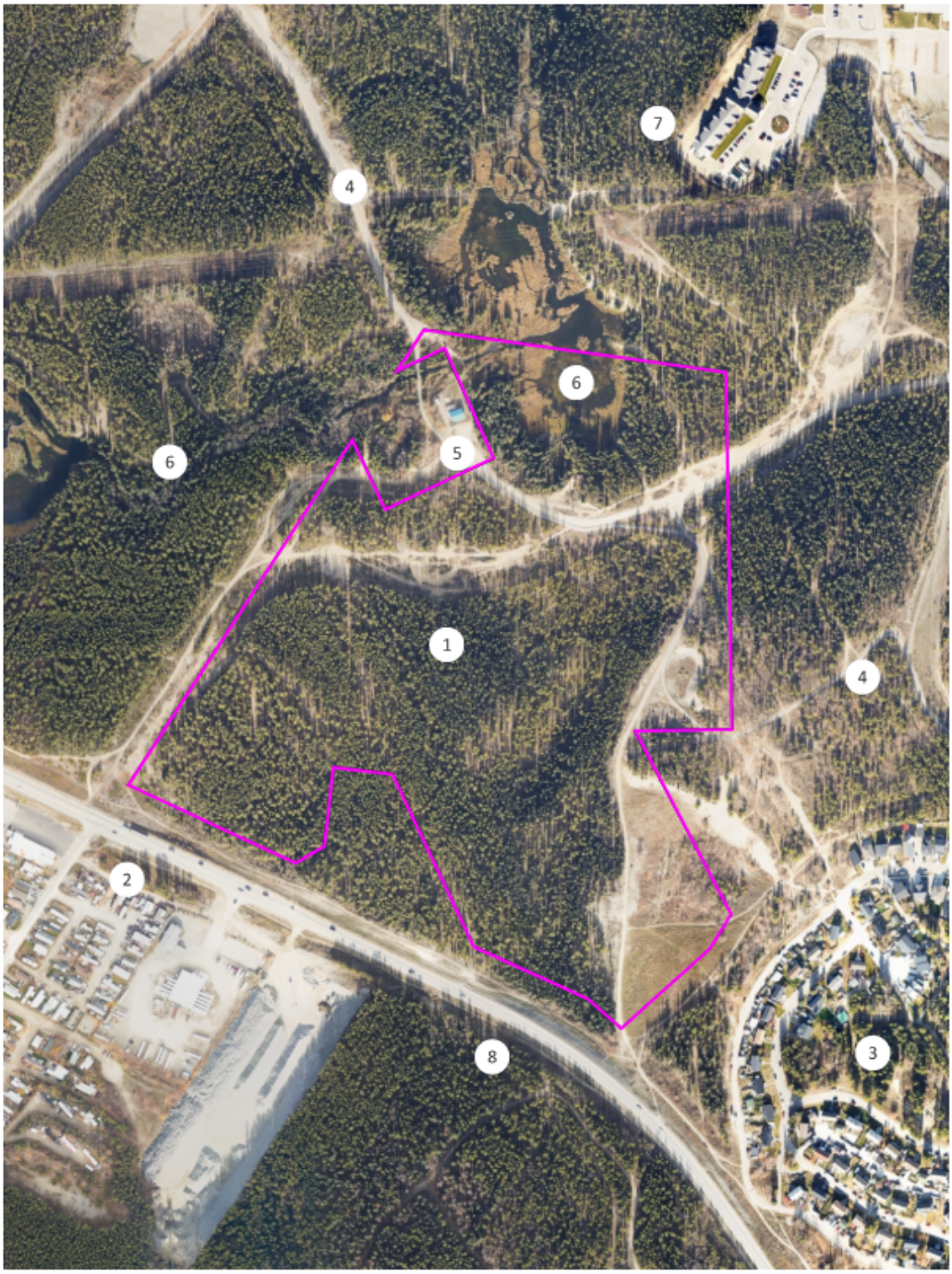
NORTH AMERICA | EUROPE

BUILDING INTELLIGENCE

APPENDIX IV

Site Aerial Photos

3 PAGES



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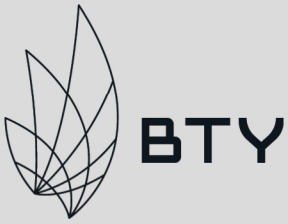
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BUILDING INTELLIGENCE

12.3 ELECTRICAL REPORT

Electrical Utilities

The utility review considered four key criteria for each candidate site: existing electrical utility corridors, room within those corridors for future upgrades such as EV bus infrastructure, whether utility tie-ins may impact site design, and whether upgrades to existing utility infrastructure may be required. Based on high-level review and input received from ATCO Electric Yukon, all three sites are considered serviceable from an electrical perspective. The main differences between the sites relate to the form of connection, probable on-site routing requirements, and relative cost implications, rather than any fundamental feasibility concerns.

Site A, Downtown / Existing EWES Location

Existing utility corridors

The existing school site is the most straightforward of the three locations from an electrical servicing perspective. ATCO has advised that the existing primary cable routing on site may be reused, with the main utility scope anticipated to consist primarily of installing a new transformer and completing the required connection to the new school development. This indicates that an established electrical servicing corridor is already present and available for reuse. This site benefits the most from existing high voltage infrastructure at it's boundary as shown in Figure 1 below.

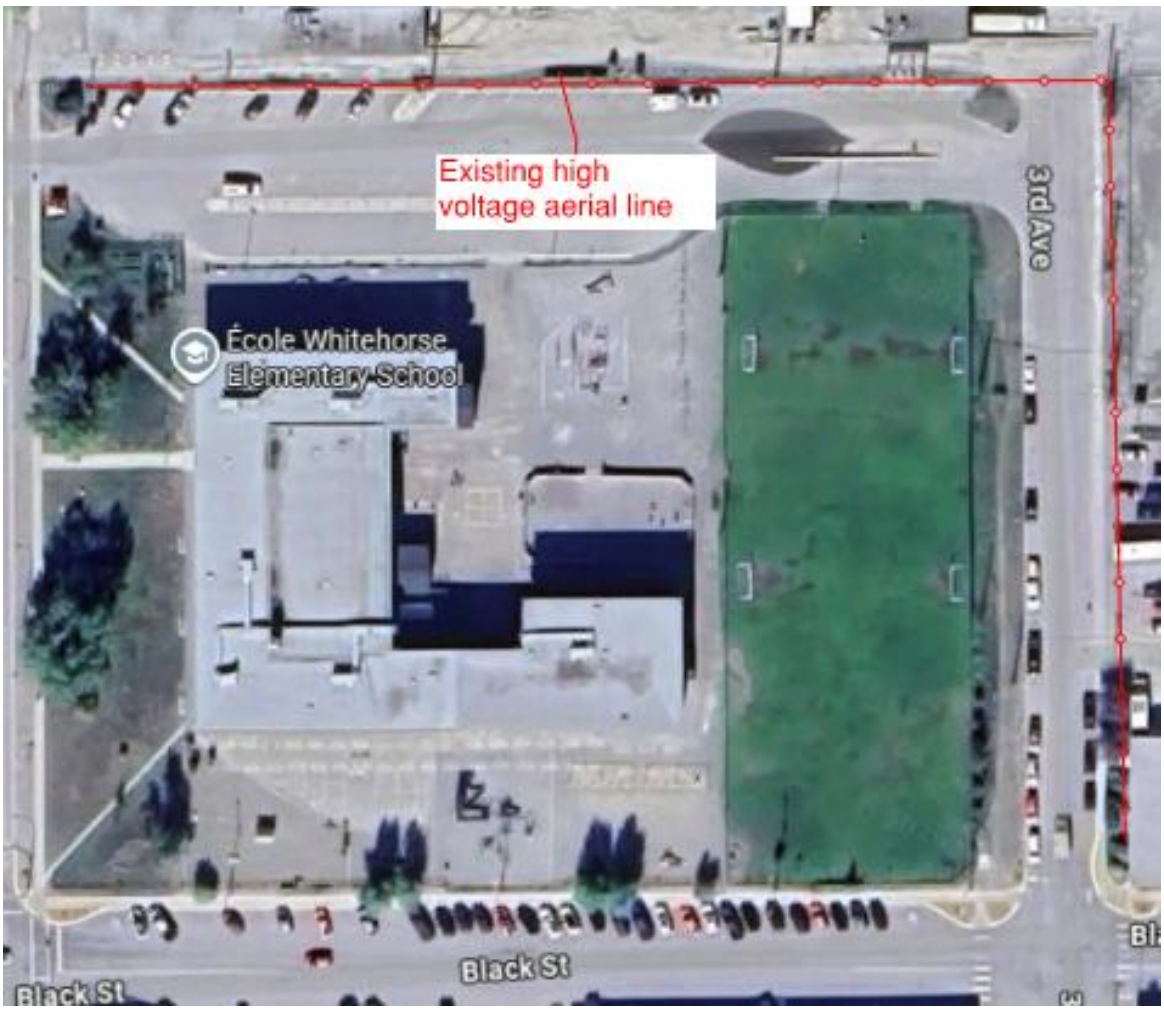


Figure 1 - Existing EWES location High Voltage Line

Room within utility corridors for future upgrades

Because the site benefits from an existing primary routing, there is a reasonable basis to conclude that future expansion can be accommodated, subject to detailed design confirmation of transformer sizing, duct bank capacity, and overall site electrical distribution strategy. Future loads such as EV bus charging would not necessarily require a different servicing concept, but they may influence equipment sizing and corridor reservation within the site. At this stage, no specific constraint has been identified that would prevent future upgrades, although the tighter urban site condition may reduce flexibility compared to the greenfield options.

Do utility tie-ins impact design?

Tie-in requirements at this site are expected to have the least impact on overall site design of the three options. Since existing primary infrastructure may be reused, the electrical servicing strategy can likely be integrated with minimal off-site extension work and limited disruption to surrounding utility corridors. The presence of an adjacent three-phase line

also provides flexibility in locating the primary connection point, should adjustments be required to suit the building layout or site constraints. The main design sensitivity will be transformer location and the amount of new trenching and conduit needed between the point of connection and the final equipment location. These factors may influence local site planning, but they are not expected to materially constrain the overall school concept.

Potential need to upgrade current infrastructure
ATCO has indicated that no upgrades to the existing upstream utility infrastructure are anticipated for this site. The expected costs are associated with the dedicated electrical connection for the school itself, rather than any broader system reinforcement. ATCO has provided a preliminary budget allowance of approximately $100,000 minimum for this option, excluding additional trenching and conduit costs that may arise depending on final transformer placement.

Site B, Valleyview

Existing utility corridors
The Valleyview site does not appear to benefit from the same level of existing on-site electrical servicing as the current school location. ATCO has advised that servicing would be achieved by extending three-phase overhead power to the edge of the lot and installing a high-voltage riser to feed the transformer. This indicates that electrical service is available in the area, but that a new dedicated extension would be required to serve the proposed school. As can be seen in Figure 2 below there is a high voltage aerial line along the west boundary road of the Valleyview neighbourhood.

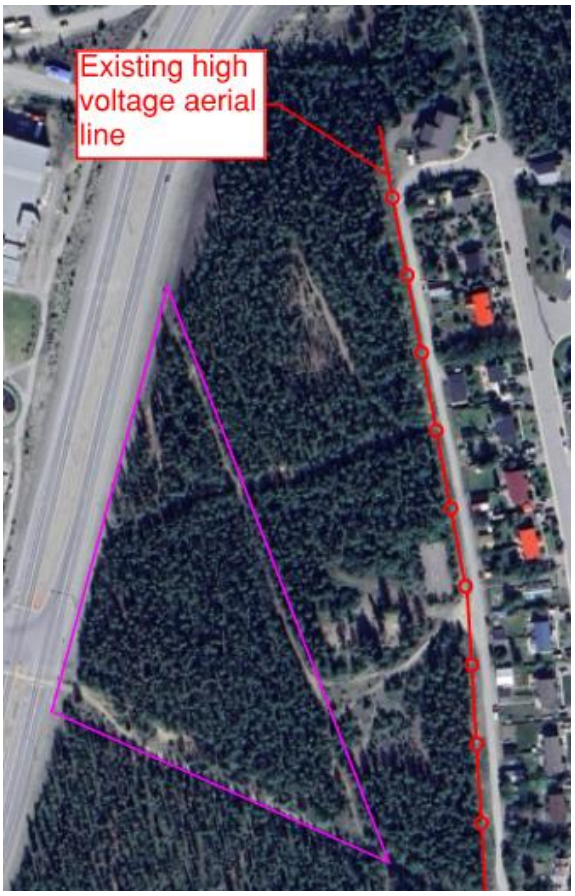


Figure 2 Valleyview Site Vicinity to High Voltage Line

Room within utility corridors for future upgrades
From a high-level perspective, the required new connection to the site should provide an opportunity to plan for future capacity at the outset. As a result, future upgrades such as EV bus charging infrastructure could be better accommodated if transformer sizing, primary servicing arrangements, and site distribution pathways are planned with reserve capacity in mind. While the final EV charging demand has not yet been defined, it is unlikely that a limited number of future charging positions would materially alter the servicing concept for a large institutional building of this scale. The more important consideration will be preserving space on site and within the service approach for future electrical equipment and distribution expansion.

Do utility tie-ins impact design?
Yes. Utility tie-ins at Valleyview are more likely to influence site planning than at the existing school site. The proposed service approach relies on bringing overhead three-phase power to the lot line and transitioning to the transformer through a high-voltage riser. As a result, transformer location, overhead line approach, brushing requirements,

and the extent of underground routing will all affect site layout and cost. The site remains feasible, but some servicing configurations will be more economical and practical than others. Coordination of the electrical service entrance location with civil layout, access roads, parking, and landscape planning will therefore be important.

Potential need to upgrade current infrastructure
ATCO has advised that no upgrades to existing upstream infrastructure are currently anticipated. The utility costs are expected to relate only to the dedicated connection required to serve the school. ATCO has provided a preliminary budget allowance of approximately $200,000 minimum for this site. This budget excludes potential additional costs for brushing, extra poles, or underground installation depending on final routing and transformer location.

Site C, Kopper King

Existing utility corridors
The Kopper King site is understood to have a servicing scenario similar to Valleyview. ATCO has advised that three-phase overhead power would be extended to the edge of the lot, with a high-voltage riser used to supply the transformer. Electrical infrastructure is present in the broader area, as can be seen in Figure 3 but a new dedicated extension to the site would be required.



Figure 3 High Voltage Line Adjacent to Kopper King Site

Room within utility corridors for future upgrades
As with Valleyview, the need for a new dedicated connection creates an opportunity to account for future electrical growth during initial planning. If future EV bus charging or other major electrical loads are anticipated, those requirements should be considered early in transformer sizing, service entrance capacity, and site corridor planning. At this stage, no fatal constraint has been identified with respect to future utility expansion. However, the final amount of available corridor space and routing flexibility will depend on how the building is positioned within the usable portion of the site and how far the transformer must be located from the overhead source.

Do utility tie-ins impact design?
Yes. Electrical tie-ins at Kopper King may have a notable impact on design because the servicing solution is dependent on a new overhead extension to the site perimeter and subsequent transformer connection. Final costs and constructability will depend on site-specific factors such as brushing, transformer placement, and whether portions of the connection need to be installed underground. While the site is feasible from a utility servicing standpoint, the electrical design will need to be coordinated carefully with the

preferred building location, access configuration, and grading strategy in order to maintain an efficient service route.

Potential need to upgrade current infrastructure
ATCO has indicated that no upgrades to the existing utility system are currently expected. Similar to Valleyview, the anticipated utility costs are associated with the dedicated service connection for the school only. A preliminary budget allowance of approximately $200,000 minimum has been identified, excluding any added costs for brushing, additional poles, or underground routing resulting from the final site plan.

Summary

From an electrical utility perspective, none of the three sites appears to require major upstream infrastructure upgrades, which is a positive outcome for all options. The existing EWES site presents the simplest and lowest-cost servicing approach due to the apparent ability to reuse the existing primary cable routing. Valleyview and Kopper King are also feasible, but both would require new dedicated three-phase overhead extensions to the lot edge and are therefore expected to have higher connection costs and somewhat greater influence on site design. Future electrical expansion, including potential EV bus charging, appears manageable at all three sites provided adequate capacity and servicing pathways are considered during detailed design.

12.4 ENVIRONMENTAL REPORTS

Phase I Environmental Site Assessment
Lot 5 Downtown Whitehorse
École Whitehorse Elementary School
Whitehorse, Yukon



PRESENTED TO

Kobayashi + Zedda Architects

JUNE 12, 2026
ISSUED FOR REVIEW | REVISION 01
704-ENG.WARC04470-03.003

This "Issued for Review" document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an "Issued for Use" document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the "Issued for Review" document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

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

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for Lot 5 Downtown Whitehorse, Yukon (herein referred to as the "Property"). The legal description of the Property is Lot 5 Parcel A Group/Quad 804, 41582 CLSR YT, 20076 LTO YT.

Phase I ESA Findings

Based on the findings of this Phase I ESA, the Property is occupied by the École Whitehorse Elementary, a three-storey concrete and brick elementary school building that was constructed in 1954. Prior to 1954 the Property housed an army barracks. The Property is relatively flat, and water drains into the underlying soils or onto the surrounding streets.

Three above ground storage tanks (ASTs) are currently on the Property. Two are propane tanks that supply air handling units, and one is a heating oil tank that supplies the boilers. A 2003 report by EBA Engineering Consultants documented the removal of a historical heating oil underground storage tank (UST). The report did not include UST details (e.g., size, contents) but noted that residual hydrocarbon concentrations may remain at about 3.4 m below ground surface and observed a hydrocarbon sheen in groundwater during excavation.

A March 2015 report completed by Summit Environmental Consultants Inc. identified multiple hazardous building materials at the Property. Limited visual assessment was possible because snow cover restricted the identification of stains and other suspect materials. Records review also identified a former on-Property gun range in the basement. Whitehorse Motors, located 30 m west of the Property (cross-gradient), was listed as a contaminated site in the Yukon Contaminated Sites Registry.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, three areas of potential environmental concern (APECs) were identified for the Property (see Table EX-1).

Table EX-1: Areas of Potential Environmental Concern

Areas of Potential Environmental Concern (APECs)	Potential Contaminants of Concern (PCOCs)
APEC 1 – On-Property Former Gun Range	Metals
APEC 2 – On-Property Historical UST Hydrocarbon Impacts	LEPH, HEPH, PAH, VPH, and BTEXs
APEC 3 – Off-Property Whitehorse Motors	LEPH, HEPH, PAH, VPH, and BTEXs

Notes: LEPH - Light Extractable Petroleum Hydrocarbons
HEPH - Heavy Extractable Petroleum Hydrocarbons
PAHs - Polycyclic Aromatic Hydrocarbons
BTEXS - Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene
VPHs - Volatile Petroleum Hydrocarbons

Tetra Tech recommends that a Phase II ESA be completed to assess if the identified APECs have impacted the Property. Tetra Tech also recommends that the Property be inspected again in snow-free conditions to confirm the absence of staining, signs of underground utilities, and/or stressed vegetation. Moreover, due to the likely presence of hazardous building materials, a comprehensive, up-to-date hazardous building materials survey and any required abatement must be completed and documented prior to any renovation or demolition at the Property.

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Appendix C	City of Whitehorse Zoning Maps
Appendix D	Groundwater Information Network Results
Appendix E	Whitehorse Historical Climate Data
Appendix F	Yukon Government Environmental Protection Branch Spills and Contaminated Sites Search
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Appendix H	Federal Contaminated Sites Inventory Results
Appendix I	Critical Habitat for Species at Risk National Dataset
Appendix J	Tetra Tech's Letter of Reliance Policy

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Kobayashi + Zedda Architects and their agents. Tetra Tech Canada Inc. (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 Kobayashi + Zedda Architects, or for any Project other than the proposed development at the subject Property. 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 Appendix A or Contractual Terms and Conditions executed by both parties.

LETTER OF RELIANCE POLICY

A Letter of Reliance is a document provided by Tetra Tech Canada Inc. to confirm and extend reliance on an Environmental Site Assessment report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided in Appendix J.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for Lot 5 Downtown Whitehorse, Yukon (herein referred to as the "Property"). The legal description of the Property is Lot 5 Parcel A Group/Quad 804, 41582 CLSR YT, 20076 LTO YT.

Tetra Tech understands the Phase I ESA is being undertaken to assess three proposed sites for a new École Whitehorse Elementary School (EWES). This Phase I ESA was completed in general accordance with the methods outlined in the Canadian Standards Association (CSA) *Z768-01 Phase I Environmental Site Assessment,* published by the CSA (reaffirmed 2022).

The objective of a Phase I ESA is to assess a site for potential and existing environmental contamination liabilities, such as the potential presence of contaminants, hazardous materials, or waste materials of a deleterious nature. The present and past activities on the Property and at the surrounding sites were reviewed to establish the potential for significant adverse impacts (if any) on the environmental status of the Property. This review was limited to the activities presented in this report. Much of this review involved the interpretation of acquired historical documents and discussions with individuals with purported knowledge of the subject. Such sources of information are not exhaustive or reliable to any level of certainty. Moreover, while Tetra Tech is skilled at preparing the technical aspects of Phase I ESAs, we do not consider ourselves to be experts in assessing the reliability of witnesses or the accuracy, availability, completeness, or reliability of historical documents and information.

In our report, we refer to potential sources of contamination as 'issues'. Any issues that in our opinion have a moderate or high potential to result in soil and/or groundwater contamination are termed areas of potential environmental concern (APECs). The regulated chemicals associated with contamination sources in each APEC are termed potential contaminants of concern (PCOCs). If any APECs are identified in the Phase I ESA, a sampling investigation will be recommended to confirm the presence or absence of any PCOCs.

Tetra Tech received written authorization from Jack Kobyashi, Principal at KZA, to proceed with the Phase I ESA on March 3, 2026.

1.1 Scope of Services

The scope of services for the Phase I ESA included the following tasks:

- Review available previous environmental reports completed for the Property and/or for sites surrounding the Property (if any).
- Review historical records of site occupancy listed in archive and land title records and previous land uses as shown in aerial photographs.
- Review spill records, contaminated site records, and documentation of any environmental concerns maintained in Government of Yukon (YG) Environmental Programs Branch (EPB), Protective Services Branch (PSB), or Environment and Climate Change Canada (ECCC) records or obtained from a query of the Government of Canada Federal Contaminated Sites Inventory (FCSI).
- Conduct a visual review of the Property and adjacent sites to identify evidence and/or sources of possible contamination or environmental impairment, and to establish the presence and specific locations of critical features such as surface staining, waste dumped at the site and waste handling procedures, suspect imported fill materials, odours, condition of vegetation, storage areas for solvents or other chemicals, evidence of underground or above-ground storage tanks (USTs/ASTs), and other site observations.

- Interview persons with purported knowledge of past and present occupancy/activities on the Property and/or surrounding area.
- Review available published geological and hydrogeological information for the Property area.
- Prepare a Phase I ESA report to assess the likelihood of site contamination that may justify further investigation, and recommend any further work in this regard, if required.

1.2 Qualifications of Assessors

Keegan Kim, M.Sc. G.I.T., conducted the historical research, interviews, site reconnaissance and was the primary author of this report. Keegan has four years of experience in the environmental field in Canada.

Darren Thomas, B.A.Sc., P.Eng., conducted the peer review of the report. Darren is an Environmental Engineer with the Environment & Water Practice. He has 14 years of experience in the fields of environmental site assessment and remediation.

Paul Gardner, M.A.Sc., P.Eng., performed the Senior Review of this report. Paul is a Senior Contaminated Sites Specialist with the Environment & Water Practice. Paul has over 20 years of progressive consulting experience in the fields of environmental site assessment and remediation.

2.0 PROJECT DESCRIPTION

2.1 Location, Current Legal Description and Ownership

The Property's civic address is 4181 4th Avenue, Whitehorse, Yukon. The location of the Property is shown on Figure 1 and the approximate co-ordinates obtained from Google Earth are shown in Table 2-1 below.

Table 2-1: Approximate Global Position of the Property

Civic Address	Latitude	Longitude
4181 4 Ave	60°43'26.98"N	135°03'35.21"W

The civic address, legal description, plan number, approximate size, and ownership of the Property are included in Table 2-2 below. A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. The results of this request are discussed further in Section 4.3, and the search results are included in Appendix B.

Table 2-2: Location, Size and Ownership

Civic Address	Legal Description	Approximate Size (m^2)	Owner
4184 4th Avenue	Lot 5 Parcel A Group/Quad 804, 41582 CLSR YT, 20076 LTO YT	17089.57	Commissioner of Yukon

2.2 Zoning

The Property is zoned PS (Public Services), per the City of Whitehorse (CoW) Zoning Bylaw 2012-20. The purpose of the PS land designation is to provide a zone for public and privately owned facilities of an institutional or community service nature.

The principal land uses for PS zoning considered of relevance to this assessment include the following:

- Public, private, and commercial schools

A copy of the CoW zoning map showing the designated uses for the Property and the surrounding sites is attached as Appendix C.

2.3 Potable Water Supply and Drinking Water Wells

Potable water is supplied to the Property and occupants of this area of Whitehorse via an underground piping network operated by the CoW. The source drinking water wells are located approximately 2.2 km to 3.5 km southeast of the Property across the Yukon River.

Tetra Tech conducted a search of the Canadian Groundwater Information Network (GIN) using their online mapping tool on March 12, 2026, to identify nearby water wells. According to the online mapping tool, there are six recorded water wells located within a 1.5 km search radius of the Property with none of the identified wells located on the Property. The locations relative to the Properties and the reported use of these wells is summarized in Table 2-3.

Table 2-3: Summary of Nearby Groundwater Wells from GIN

Groundwater Well	Distance and Direction from Property	Purpose
Well 204110203	320 m Northeast	Geotechnical borehole
Well 204110139	520 m East	Domestic – household needs
Well 204110134	530 m East	Domestic – household needs
Well 204110222	650 m North	Commercial
Well 204110225	870 m Northwest	Water exploration test hole
Well 204110191	1300 m Southeast	Water exploration test hole

A copy of the GIN search results can be found in Appendix D.

2.4 Interviews

2.4.1 Sharon MacCoubrey, Principal, École Whitehorse Elementary School

Tetra Tech interviewed Sharon MacCoubrey, Principal of École Whitehorse Elementary School, via email on March 20, 2026. Sharon MacCoubrey has worked at the school for over 30 years. She stated that the Property has been used as a school since 1954. She also noted that a UST was present on the Property until the early 2000s, when it was replaced by a new heating oil AST for powering boilers.

Sharon MacCoubrey reported that she is not aware of any significant storage of chemical products on the Property and has not observed any spills or stained areas during her time at the school. No fill material has been brought on to the Property, and she is not aware of any environmental infractions occurring on the Property.

2.4.2 Peter Robertson, Mechanical Specialist, Yukon Government Property Management Division

Tetra Tech interviewed Peter Robertson, Mechanical Specialist for the Yukon Government's Highways & Public Works Department, Property Management Division, via email on March 23, 2026. Peter Robertson confirmed that the above-ground fuel tank on the Property contains heating oil and that records indicate a 550-gallon capacity, which is used to power the boilers. The boilers provide heat to the perimeter radiators serving the school classrooms. Peter Robertson also stated that the two above-ground propane tanks on the Property are used for the make-up air units or rooftop units that temper fresh air supplied to the classrooms.

Peter Robertson provided a 2003 report prepared by EBA Engineering Consultants (EBA) regarding underground fuel storage tank removal at the Property. This report is discussed further in Section 4.4. Peter Robertson also noted that some fill material was likely brought in during parking lot upgrades and updates.

2.5 Current Property Facilities and Observations

Tetra Tech's representative, Keegan Kim, completed a site visit at the Property on March 16, 2026. The site visit involved visual observations of the Property surface for any stains or suspect materials on site, a visual review of accessible areas for the on-site outside areas, and an assessment of the current condition of vegetated areas on the Property. Snow cover during the site visit limited observations of surface conditions and access to some areas. Photographs taken during the site visit are presented in the Photos Section. Photos 1 through 20 show the Property, and photos 21 through 28 show the surrounding land use.

2.5.1 Property Layout

The Property is accessible from 3rd Avenue, 4th Avenue, or Black Street and the lot is rectangular. The Property is approximately 17,089 m² in area and features a three-storey elementary school building and a parking lot. The building houses École Whitehorse Elementary School on all three floors and covers approximately 40% of the Property. The Property layout is shown in Figure 2.

In the basement, the northern section contains an art room, kitchen, activity room #10, two men's washrooms and two women's washrooms, classroom #5, and the former gun range, which is being used for storage of school equipment and furniture; the flooring appears to have been poured over with concrete (see Section 5.1.1). The southern section of the basement contains a kindergarten, science storage room, boiler room, classroom #6, sprinkler room, computer lab, outreach room #10A, classroom #1, classroom #12, and men's and women's washrooms.

On the first floor, the northern section contains a reception area, the principal's office, change rooms, an equipment storage room, and two classrooms; the southern section contains nine classrooms. On the second floor, the northern section contains a dental office, a nurse's room, five classrooms, and men's and women's washrooms. The southern section of the second floor contains an additional nine classrooms. Several janitorial/storage rooms were observed throughout the three floors.

2.5.2 Property Structures

The École Whitehorse Elementary School building is constructed of concrete and brick. Lighting is primarily fluorescent. The outdoor area includes a northern parking lot, an outdoor field, and two playgrounds. Heating is supplied by boilers fuelled by heating oil from the heating-oil AST located in the centre of the Property. The building has one electric lift.

2.5.3 Above-Ground or Underground Storage Tanks

Tetra Tech inspected the Property for indications of ASTs and/or USTs, such as suspect vent or filler pipes, fuel lines, stained areas, and evidence of stressed vegetation. Three ASTs were identified during the site visit; all were located on concrete pads.

Two propane ASTs were observed in the northwestern outdoor portion of the Property. According to Peter Robertson, the two above-ground propane tanks supply make-up air (rooftop) units that temper fresh air provided to the classrooms (see Section 2.4.2).

One heating-oil AST was observed in the centre of the outdoor portion of the Property. Records indicate a 550-gallon capacity; the tank is used to fuel the boilers, which provide heat to the perimeter radiators serving the classrooms. No spills or stained areas were observed; however, the Property was snow-covered at the time of the site visit.

2.5.4 Chemical and Waste Storage and Disposal

The science storage room, boiler room, and janitorial storage rooms on all three floors contained chemicals for operational and educational use. The janitorial storage rooms contained primarily household cleaning products, including alcohol/disinfecting wipes, carpet stain remover, bleach, hand cleaner, disinfectant cleaner concentrate, heavy-duty degreasers, soaps, detergents, hand sanitizers, and vinegar for decontamination and cleaning. The boiler room contained a 55-gallon drum of VanFrost 50/50 and approximately five 20-L pails of Dowfrost HD, which are commercial antifreeze/heat-transfer and boiler-treatment fluids used to prevent freezing and protect heating systems from corrosion. The science storage room contained various chemicals in quantities typical for educational use, such as chemical dyes, baking powder, peroxide, soda ash, bleach, cupric sulfate, iodine solution, calcium sulfate, calcium hydroxide, and aluminum potassium sulfate for school science experiments. No other areas of the Property contained significant chemical storage.

Waste disposal is provided by garbage and cardboard-recycling dumpsters located in the northwestern outdoor portion of the Property, adjacent to the parking lot. Waste collection is provided by Pacific Northwest Waste Removal.

2.5.5 Spills and Stained Areas

The outdoor areas of the Property were snow-covered during the site visit; as such, not all surficial areas could be observed.

2.5.6 Fill Material

No suspect fill soils were observed on the Property during the site visit. Peter Robertson noted that some fill material was likely imported during parking lot upgrades that are periodically conducted (see Section 2.4.2). Tetra Tech understands the volume to be minor and the fill is likely to be clean gravels for road base upgrades.

2.5.7 Property Drainage

The Property is relatively flat. Based on visual assessment, there was no evidence of significant pooling on the Property; however, it was snow-covered during the visit. Runoff from paved areas is assumed to drain to the underlying soils or the City of Whitehorse stormwater system serving the downtown area.

2.5.8 Hazardous Building Materials

In the past, special attention items (SAIs) were commonly used in certain building materials, prior to the discovery of the items' potentially hazardous effects on human health and/or the environment. The potential presence of SAIs was assessed during the Property walk over through visual observations only. A list of typical SAIs, their potential sources, and whether they are suspected to be currently on the Property or not, are included in the following table.

Table 2-4: Hazardous Building Materials

Special Attention Item	Potential Sources	Suspected on the Property
Polychlorinated Biphenyls (PCBs)	The past use of PCBs in electrical equipment, such as transformers, fluorescent lamp ballasts, and capacitors, was common prior to 1980. The federal Environmental Contaminants Act, 1976, prohibited the use of PCBs in heat transfer and electrical equipment installed after September 1, 1977, and in transformers and capacitors installed after July 1, 1980.	No, based on the Summit Environmental Consultants in March 2015 (See Section 4.4.1)
Asbestos-Containing Materials (ACMs)	ACMs were commercially used in North America since the late 1800's. Canadian regulations restricting the use of ACMs were enacted between 1978 and 1980. Potential sources include, but are not limited to, vinyl floor tiles and sheet vinyl flooring, ceiling tiles, plaster, joint compounds, spray-applied and blown-in insulations, electric wiring insulation, pipe insulation, elevator equipment panels, and heating and electrical ducts. Cemestos building panels were commonly constructed in the 1940s and are prefabricated building materials consisting of concrete and asbestos. ACMs may become a health concern if the material deteriorates or is disturbed, and the asbestos fibers become airborne and are subsequently inhaled.	Yes, based on the Summit Environmental Consultants in March 2015 (See Section 4.4.1)
Lead	Most paints were lead-based prior to the 1950s. Beginning in the late 1970s, the use of lead in interior paint was limited by law. By the early 1990s, all consumer paints produced in Canada, for both interior and exterior purposes, were essentially lead-free. Potential sources also include lead pipes and lead metal sound absorbers.	Yes, based on the Summit Environmental Consultants in March 2015 (See Section 4.4.1)
Ozone-Depleting Substances (ODS)	Chlorofluorocarbons (CFCs) are a common category of ODS. Prior to the mid-1990s CFCs were used in refrigerants in refrigerators and air-conditioners (FREON, CRC-113, or R-12), propellants in aerosol spray cans, blowing agents in the manufacture of foams, and cleaning agents for electronic equipment. Other sources of ODSs include: ▪ Hydrochlorofluorocarbons (HCFSs), which were used as substitutes for CFC refrigerants and blowing agents. ▪ Carbon tetrachloride and methyl chloroform, which are used as cleaning solvents for metals. ▪ Halons, which are used in fire extinguishing systems. ▪ Methyl bromide, which are used as an agricultural pesticide and to fumigate agricultural commodities.	No, based on the Summit Environmental Consultants in March 2015 (See Section 4.4.1)
Urea Foam Formaldehyde Insulation (UFFI)	UFFI was developed in Europe in the 1950s and was installed in some Canadian homes from approximately 1977 until it was banned in 1980. UFFI was made of urea-formaldehyde resin, a foaming agent, and compressed air, and was used to insulate hard-to-reach cavities in building walls.	Yes, due to the age of the building (1954), no UFFI assessment from the Summit 2015 report.
Mercury	Potential sources include, but are not limited to, mercury thermostats and high intensity fluorescent lamps.	Yes, based on the Summit Environmental Consultants in March 2015 (See Section 4.4.1)

Due to the likely presence of hazardous building materials, a comprehensive, up-to-date hazardous building materials survey and any necessary abatement must be performed and documented before commencing any renovation or demolition work at the Property.

2.6 Surrounding Site Review

Publicly accessible or visible portions of adjacent sites within 200 m of the Property were viewed to assess their potential for environmental concerns that could impact the environmental integrity of the Property. Table 2-5 presents a summary of the observations of the surrounding sites and their orientation relative to the Property based on the inferred groundwater flow direction (north; see Section 3.3 and Figure 3). Figure 3 shows the location of the businesses relative to the Property.

Table 2-5: Surrounding Land Uses

Direction	Notes, Current Tenants & Environmental Observations within 200 m radius of Property
North (inferred down-gradient)	**Developed, zoned Mixed Use Commercial 2** To the north of the Property lies developed sites and businesses including: – Qwanlin Mall (Wykes Independent, Staples, Shoppers Drug Mart) – NVD Place (Klondyke Medical Clinic, Trinity Dental Clinic) – Ogilvie Street
East (inferred cross-gradient)	**Developed, zoned Mixed Use Commercial 2** ▪ To the east of the Property lies developed sites and businesses including: – Napa Auto Parts – Yukon Centre Mall (Restaurants, Northlight Innovation, Yukon Liquor Corporation) – Klondike Office Systems – Candy's Fruit Stand
South (inferred up-gradient)	**Developed, zoned Mixed Use Commercial 2** ▪ To the south of the Property lies developed sites and businesses including: – Salvation Army/Northern Collective Church – All West Glass – Hendrik's Barbershop – Kluhini Building – Berska Building
West (inferred cross-gradient)	**Developed, zoned Mixed Use Commercial 2** ▪ To the west of the Property lies developed sites and businesses including: – Budget Car Rental – Whitehorse Motors – Old Qwanlin Twin Cinemas – Residential homes

3.0 NATURAL SETTING

3.1 Geological Information

The Bond, Morison, & McKenna terrain mapping (Whitehorse, 2005), shows the surficial geology for the Property area as being comprised of fluvial deposits which are sediments transported and deposited by streams and rivers. Fluvial sediments consist of gravel and/or sand and/or silt (and rarely clay) and is commonly moderately to well-sorted and displays stratification, although massive, non-sorted fluvial deposits do occur. According to the Yukon Bedrock Geology Map, the bedrock in this area is composed of massive to thick bedded limestone, granodiorite, and quartz diorite.

3.2 Climate Records

Historical climate information for this region is based on data from Environment Canada collected at the Whitehorse Airport Weather Station.

Climate information was provided for the period between 1981 and 2010 (for snowfall and rainfall records) then 1981 and 2020 (latest available, for precipitation records). According to the information, the rainfall, precipitation, and snowfall records were as follows:

- Annual Rainfall: 160.9 mm
- Highest Monthly Rainfall: 38.1 mm (July)
- Annual Precipitation: 262.3 mm
- Highest Monthly Precipitation: 38.1 mm (July)
- Annual Snowfall: 141.8 cm
- Highest Monthly Snowfall: 27.0 cm (November)

A copy of the historical climate information is provided in Appendix E.

3.3 Hydrogeology

The Property is located on the generally flat bottom of the Yukon River valley, approximately 380 m west of the Yukon River. Based on Tetra Tech's previous experience in the area, groundwater has been previously encountered at a depth of approximately 4 m below ground surface (m bgs) and groundwater elevations are expected to vary over the course of a year, due to water level fluctuations in the Yukon River. The river levels vary because of controlled volume flow changes through the Whitehorse Rapids Dam.

Groundwater is inferred to flow in a generally northward direction, consistent with the flow of the Yukon River. Tetra Tech's experience in the area has shown some variability in groundwater flow directions—ranging from north to northwest—away from the Yukon River. However, despite these variations, groundwater flow in this area is generally considered to be northward.

3.4 Surface Waterbodies

No waterbodies pass through or are located immediately adjacent to the Property. The nearest surface waterbody is the Yukon River, located approximately 380 m east of the Property.

3.5 Air Quality

Environment Canada maintains an air quality monitoring network, and provides an Air Quality Health Index (AQHI). The AQHI is a scale designed to help the user understand what risk the air quality in a region may pose to human health, and is an aggregate of measured particulate matter in the air, ozone and ground level, and concentration of nitrogen dioxide. It measures the air quality in relation to human health on a scale from 1 to 10. The higher the number, the greater the health risk associated with the air quality.

Whitehorse typically scores between 1 – 3 on this scale (low risk for general and at risk populations) and periodically reach 4 (moderate risk) during normal conditions (such as when road dust is prevalent in the spring). Transient sources, such as passing vehicles or wood fires may raise the AQHI locally for short periods of time. Tetra Tech did not observe any local air pollution concerns during the site visit.

3.6 Noise Quality

The Property is located in the downtown area of Whitehorse, where vehicle traffic is frequent during the morning and evening commutes, particularly along 4th Avenue at the Property's western boundary. The Property is also located approximately 750 m from the Erik Nielsen International Airport. The Canadian Centre for Occupational Health and Safety identifies indicators of potentially hazardous noise levels to include:

- Noise that is louder than busy city traffic.
- People needing to raise their voices to speak to someone one metre away.
- People needing to increase the volume of their radio or television at the end of a work shift to levels that are too loud for others.
- Employees experiencing difficulty communicating in crowded or noisy environments after working for several years at the same workplace.
- People hearing ringing or humming sounds when they leave work.

No quantitative noise measurements (i.e., using a sound level meter) were completed. During Tetra Tech's site visit, field staff noted intermittent road noise at the Property's western boundary; however, the noise did not reach levels considered potentially hazardous. The majority of the Property, aside from the western boundary, was free of vehicle traffic noise.

4.0 HISTORICAL RECORDS

Tetra Tech conducted a historical review of the Property and surrounding sites using available aerial photographs, Google Earth satellite images, and Yukon Archive documents. This section summarizes the historical review findings for the Property and the surrounding sites.

4.1 Aerial Photos and Satellite Imagery

Aerial images from 1946, 1952, 1961, 1963, 1965, 1976, 1985, 1995, 2001, 2014, 2019, and 2024 are included as Figure 4 (a to l). Table 4-1 presents a discussion of the development of and changes to the Property and surrounding area based on these images.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1946	**Property:** The Property is developed; army barracks and Quonset huts are present. The Property does not appear to be used by the British Yukon Railway Company or its associated railroad structures. **Surrounding Sites:** The areas surrounding the Property are predominantly developed, with additional army barracks and related structures.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1952	**Property:** École Whitehorse Elementary School is under construction on the Property. A laydown area or outdoor storage is visible in the eastern section of the site. **Surrounding Sites:** The areas surrounding the Property appear to be mostly developed with buildings and commercial uses. Areas to the south have been cleared and are undergoing additional development.
1961	**Property:** The Property is developed, and École Whitehorse Elementary School had been constructed by 1954 according to historical reports. **Surrounding Sites:** The areas surrounding the Property appear mostly developed with buildings and commercial uses; however, the air photo is too blurry for reliable interpretation.
1963	**Property:** The air photo clearly shows the Elementary School on the Property. No additional outdoor features, such as fields, playgrounds, or other structures, are visible in the surrounding yard areas. **Surrounding Sites:** The surrounding areas appear largely unchanged from earlier years. Residential development is evident to the south and west, while larger commercial, storage-type, or light industrial buildings are visible to the north. To the east, near the Yukon River, the White Pass railway corridor and its associated structures can be clearly observed.
1965	**Property:** The Property remains largely unchanged from previous years. Several vehicles can be seen parked in the northern portion of the Property. **Surrounding Sites:** Industrial buildings located north of the Property appear to have been demolished. Other surrounding areas remain largely unchanged.
1976	**Property:** The Property remains largely unchanged. The road along the northern boundary appears to have been removed, and this area now functions as part of the Property's parking space. **Surrounding Sites:** New commercial development, corresponding to the present-day buildings occupied by Independent Grocer, Staples, and Shoppers Drug Mart, has been constructed to the north where industrial buildings were previously demolished. Several residential units to the south and west of the Property also appear to have been removed.
1985	**Property:** A grassed field is now visible on the eastern portion of the Property, and additional grassed areas can be seen near the school's main entrance on the western side. **Surrounding Sites:** Reduced activity and the removal of stored materials are evident in the White Pass Rail area to the east of the Property. Other surrounding sites appear largely unchanged.
1995	**Property:** The Property remains largely unchanged. **Surrounding Sites:** Most materials and structures associated with the White Pass Rail area to the east appear to have been cleared and removed. Other sites surrounding the Property remain largely unchanged.
2001	**Property:** Playground structures are visible in the southern portion of the Property. **Surrounding Sites:** Additional buildings have been developed to the south of the Property, including redevelopment immediately adjacent to the southern boundary. Sites to the west and north appear largely unchanged, and the White Pass area to the east has been converted into a gravel lot.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
2014	**Property:** The parking area in the northern portion of the Property appears to have undergone some modifications. Otherwise, the Property remains largely unchanged. **Surrounding Sites:** Early development of the Kwanlin Dün First Nation Cultural Centre is visible at the eastern edge of the air photo. Increased vehicle storage is evident to the west at Whitehorse Motors.
2019	**Property:** The Property appears to remain largely unchanged. **Surrounding Sites:** Sites surrounding the Property appear largely unchanged.
2024	**Property:** The Property appears in its current configuration. **Surrounding Sites:** The surrounding sites also appear consistent with their current configuration.

4.2 Yukon Archives

On March 18, 2026, Tetra Tech visited the online Yukon Archives database and the physical database inventory (provided to Tetra Tech by the Yukon Archives in August 2020) to review archival records pertaining to the Property and the surrounding area. This search produced no materials directly pertaining to the Property.

4.3 Land Titles Office

A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. Current and historical titles are provided in Appendix B.

The Property is described as Parcel #100161515 (Lot 5, Parcel A, Group/Quad 804, Whitehorse, YT, Plan No. 20076). The current registered owner is the Commissioner of Yukon.

Historical records from the Land Titles Branch indicate that Lot 5, Parcel A was owned by Harvey Graham as of June 14, 1901; transferred to Samuel H. Graves on June 18, 1902; then to the British Yukon Land Company Limited on May 21, 1923; and subsequently to The British Yukon Railway Co. on July 31, 1940. The Property became Crown land (Her Majesty Queen Elizabeth II) on May 21, 1953. Ownership was transferred to the Commissioner of Yukon on August 7, 1971.

Air photos are only available from 1963 onward, so it is not fully known how the British Yukon Railway used the Property between 1940 and 1953. However, CBC reporting indicates that the Elementary School was already constructed by 1950, suggesting that significant industrial activity was unlikely during railway ownership. It is reasonable to assume that any use was minor or limited to storage, as the railway's primary facilities were located farther east, closer to the Yukon River.

4.4 Historical Reports

The following sections summarize available historical reports relating to the Property and the surrounding area outside of the regulatory records databases (summarized in Section 5.0).

4.4.1 Reports Relating to the Property

Tetra Tech conducted a search of publicly available records pertaining to the Property, and the results of this search are presented below.

Project updates for École Whitehorse Elementary School on the Yukon Government website (Yukon Government, 2026) indicate that, as of December 10, 2025, the Government of Yukon paused plans to construct the new École Whitehorse Elementary School at the Takhini Educational Land Reserve in response to community concerns. The update notes that planning gaps were leading to cost overruns. The Department of Education will engage with partners, parents, and the broader school community to identify a preferred location for the new school, considering a range of potential sites. This Phase I ESA forms part of the process to evaluate three potential sites. The existing École Whitehorse Elementary School is the oldest operating school in the Yukon and has been identified as a priority for replacement through long-term facilities planning.

A CBC News article (CBC, 2024) reported that Whitehorse Elementary School, built in 1950, is the oldest school building in Whitehorse. The Government of Yukon stated that the school is at the top of the list of facilities requiring major renovation or replacement. In 2022, the territory indicated that renovating the existing structure would cost approximately 1.4 times more than constructing a new school.

Hazardous Building Materials Assessment

Tetra Tech also received three documents from Miguel Marques, Senior Building Program Manager at the Yukon Government, regarding hazardous building materials assessments.

The first document was issued by the Yukon Government's Highways and Public Works Department to Pat Hogan of the Property Management Agency, dated November 28, 2005 (Yukon Highways and Public Works, 2005). This letter summarized vermiculite attic insulation sample results for 18 education buildings. Vermiculite attic insulation was commonly used in buildings constructed prior to 1985. The document stated that Whitehorse Elementary School contained no asbestos in its vermiculite insulation.

The second document was the final hazardous building materials assessment report for Christ the King Elementary, Teslin Elementary, and Whitehorse Elementary School (the Property), prepared by Summit Environmental Consultants Inc. in March 2015 (Summit Environmental Consultants, 2015). The report used intrusive assessment methods to identify concealed building materials and hazardous building materials such as asbestos-containing materials, lead-based paint, polychlorinated biphenyls (PCBs), mercury, urea-formaldehyde foam insulation, ozone-depleting substances, glycol, and mold. Above-ground storage tanks were also assessed. The report estimated the hazardous building material abatement cost for Whitehorse Elementary School at approximately $700,000, the highest of the three schools assessed. Identified hazardous materials at the Property included:

- Various flooring materials (85 m²) (Asbestos)
- Elbow mud piping insulation (6 × 4-inch elbows) (Asbestos)
- Air-cell pipe covering (20 linear feet on 4-inch piping) (Asbestos)
- Drywall (approximately 325 m²) (Asbestos)
- Lead-containing paint (>90 mg/kg) over approximately 5,217 m²
- Mercury suspected in all 1,780 fluorescent light tubes assessed

Summit Environmental Consultants recommended prompt removal of the identified hazardous materials. Light ballasts observed throughout the school were inspected and were determined not to contain PCBs.

The third document was issued by the Yukon Workers' Compensation Health and Safety Board to Sheldon Keobke of Energy North Construction, dated March 18, 2015 (Yukon Workers' Compensation Health and Safety Board, 2015). The letter stated that air samples collected at Whitehorse Elementary School were cleared and were all well below acceptable asbestos concentration levels.

A review of available documentation and confirmation from Miguel Marques, Senior Building Program Manager of Yukon Government, found no records of abatement activities completed after the 2015 Summit Environmental Consultants report. Because hazardous building materials are therefore likely still present, an updated hazardous building materials survey and any required abatement must be completed and documented prior to any renovation or demolition activities.

Underground Fuel Storage Tank Removal

Peter Robertson, Mechanical Specialist with the Yukon Government Property Management Division, provided a report from EBA Engineering Consultants (EBA), dated November 10, 2003, prepared for the Government of Yukon Property Management regarding environmental services for UST removal at the Property (EBA Engineering Consultants, 2003). The report did not include UST details (e.g., size, contents).

EBA monitored the removal of the UST, during which an initial remedial excavation removed approximately 40 m^3 of contaminated soil. Following this initial removal, 6 of the 12 confirmatory soil samples exceeded applicable guidelines.

A second remedial excavation was conducted about a month later, on September 6, 2003, removing an additional 50 m^3 of contaminated soil, which was subsequently relocated. Despite this second excavation, two samples still exceeded the Contaminated Sites Regulation (CSR) standards. EBA concluded that hydrocarbons had reached the groundwater table at Whitehorse Elementary School, as a hydrocarbon sheen was observed on the water during excavation.

In summary, the source of the contamination and the majority of the impacted soil were removed; however, a small pocket of contaminated soil may remain below approximately 3.4 m depth, with hydrocarbon concentrations potentially exceeding the Yukon Contaminated Sites Regulation (YCSR) standards. EBA anticipated that the remaining contamination would eventually degrade to below CSR standards through natural attenuation, as the remaining impact was not considered significant. No further work was recommended.

4.4.2 Reports Relating to the Surrounding Area

Tetra Tech conducted a search of the publicly available records pertaining to the immediate surrounding area. There were no reports or records available.

5.0 REGULATORY RECORDS

The regulatory records review is described in the following subsections.

5.1 Government of Yukon

5.1.1 Environmental Programs Branch, Spills and Contaminated Sites Registry

On March 5, 2026, Tetra Tech completed a search of the YG EPB Spills and Contaminated Sites Registry for all documented spills and registered sites within a 200 m radius of the Property. The Spills and Contaminated Sites Registry documents milestones in the identification and cleanup process of a site. The site registry contains information on sites that have been investigated and remediated in the Yukon since 2001. The YG EPB search results are attached in Appendix F.

A lack of information on a particular site does not indicate an absence of contamination, but only an absence of YG EPB documentation. The search identified fourteen sites: five contaminated, five remediated, and three unknown. A summary of these sites is provided in Table 5-1 below.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
Whitehorse Elementary School	On Property	Contaminated	After concern about hydrocarbon vapours originating from underground fuel tanks at the rear of Whitehorse Elementary School, soil sampling near the fuel tanks yielded hydrocarbon concentrations that exceeded the applicable standards. The old gun range in the basement of the school was sampled and found to be heavily contaminated with metals which was removed from site in 2004. Subsequent sampling indicated that most of the metal was removed from site, however, it was not entirely remediated.	This site is located on the Property. During the site visit, the former gun range area in the basement appeared to have been fully removed and is currently being used as a storage space. Due to snow cover at the time of the visit, no evidence of staining or spills was observed near the AST on the exterior portion of the school According to the YG EPB summary, metal contamination associated with the former gun range was largely removed during remediation efforts in 2004; however, the area was not fully remediated. Given the documented history of hydrocarbon impacts near the former fuel tank, the residual metal contamination associated with the former gun range, and its on-Property location, this site is considered as an APEC.
Whitehorse Motors	30 m West (Cross-gradient)	Contaminated	Potential contamination from heating fuel spill, possibly attributed to spillage during numerous refueling occasions. Due to staining discovered during the removal of two fuel tanks ~10 m³ of contaminated soil was relocated in 2008. A Phase 1 Environmental Site Assessment report to monitor the tank removal and conduct any remedial excavations and soil sampling was also completed at this time. After the removal of contaminated material, all confirmatory samples from the	This site is inferred to be hydraulically cross-gradient to the Property, based on the assumed general northward groundwater flow direction in the area. However, given known local variability in groundwater flow directions, there remains potential for portions of the site to act as an up-gradient source depending on actual subsurface conditions. Since 2008, several contaminant releases have occurred at the site, including hydrocarbon

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
			waste oil excavation bases and sidewalls had hydrocarbon concentrations below the applicable standards. The concentration of the confirmatory samples from the diesel excavation were also below the commercial standards except for one sample from the base. In 2016, a court order was issued requiring a groundwater assessment to investigate the impacts of the illegal disposal into the sewer system. Also in 2016, ~30L of waste oil were spilled when a tank was overfilled resulting in ~10 m3 of contaminated soil being removed.	impacted soils associated with former fuel tanks, a court-mandated groundwater assessment related to illegal disposal into the sewer system, and a 2016 waste oil spill that resulted in additional soil excavation. Although confirmatory soil sampling following the 2008 remedial excavations indicated that most hydrocarbon concentrations were below applicable standards, the site maintains a documented history of petroleum impacts. Given its contaminated status, history of multiple hydrocarbon releases, and its close proximity to the Property, this site is considered an APEC.
3181 3rd Avenue	30 m East (Cross-gradient	Remediated	In September 2007, an unknown volume of diesel was spilt from the outlet of a tank. The pooling of diesel on the site was observed. Diesel was identified at the storm sewer lift station; booms were set up at the Yukon River to mitigate the release of diesel into the river and PHC contaminated water was pumped out of the lift station. The property was slated for demolition and the tank had not been filled for 30 years. ~40 m3 of PHC contaminated soil was removed. In April 2008, a pipe ruptured due to freezing temperatures releasing water, which mixed with approximately 2-3 L of residual diesel from the previous tank.	This site is inferred to be hydraulically cross-gradient to the Property. Considering its remediated status, the inferred groundwater flow direction, and the limited volume of the reported spill, the site is considered to pose little to no environmental concern to the Property.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
The Former Salvation Army	40 m South (Up-gradient)	Remediated	In April 2011, ~1000 L of heating fuel was spilled as a result of a leak originating from a fuel tank. A site investigation and delineation was conducted in 2011. The east wall of the excavation could not be excavated safely due to a foundation wall. Due to this, a contaminated soil plume remained under the building. The excavation involved the relocation of 70 m3 and did not encounter groundwater. In situ treatment was installed. A technical memo was submitted in June 2012, which identified the confirmation of remediation and final confirmatory sample. In February 2013, an unknown volume of diesel was reportedly spilled due to an unknown cause. The spill occurred within the alleyway of the Salvation Army and the old Legion. No release to the environment was observed and further actions were not required.	This site is inferred to be hydraulically up-gradient to the Property. However, given its remediated status, including the installation of in situ treatment measures and the 2013 determination that no release occurred and no further action was required, the site is considered to pose little to no environmental concern to the Property.
Mall	60 m North (Down-gradient)	Remediated	In 2004, investigations determined the presence of dry cleaning solvents in groundwater which had migrated from behind Coffee, Tea and Spice (old dry cleaning location) to the Whitehorse Elementary School bus loop. Subsequent sampling of wells (only one was found with water) on this site were undertaken in 2007, and found concentrations of contamination that exceeded the applicable standards. This finding does confirm the presence of a contaminant plume in the groundwater, though it has not been delineated. Phase I and II ESAs were conducted during 2012 to 2016, which involved drilling and installing monitoring wells. Further investigations in 2015 indicated that contamination remained in the groundwater. A Risk Assessment was recommended in order to apply risk-based restoration standards to the contaminants. In January 2016, approximately 91 kg of refrigerant was spilled due to a leak. A Risk Assessment concluded that the risk due to site contamination was acceptable with continued sampling.	This site is inferred to be hydraulically down-gradient to the Property. Given its hydraulic orientation, remediated status, and distance, this site is considered to pose little to no environmental concern to the Property.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
Black Street ROW b/w 4th and 5th Avenues	70 m West (Cross-gradient)	Contaminated	Relocation permit was issued for August 3, 2011 for ~70 cubic meters of contaminated soil and ~1 cubic meter of contaminated groundwater. Confirmatory samples were insufficient. No further work can be done on site, as it was graded and paved (Nov 2011); furthermore, the source of contamination is uncertain as the contamination plume is not delineated and the soil contamination is not delineated.	This site is inferred to be hydraulically cross-gradient to the Property. Although the site is listed as contaminated and the source and extent of contamination have not been fully delineated, the area was graded and paved in 2011, and no further intrusive work can be completed. Given its hydraulic orientation, the significant distance from the Property, and the lack of evidence indicating migration toward the site, this location is considered to pose little to no environmental concern to the Property and is therefore not considered an APEC.
404 Cook Street	90 m Northwest (Down to cross-gradient)	Unknown	RCMP responded to a dispute on August 8, 2022 where approximately 50-75 gallons of fuel was spilled. No evidence of remediation has been communicated to the Environmental Protection and Assessment Branch to date. No analytical results have been viewed, so the site cannot be confirmed to be contaminated.	This site is located approximately 90 m northwest of the Property and is inferred to be hydraulically down-gradient to cross-gradient relative to the assumed groundwater flow direction. Although a fuel spill was reported in 2022, the site has not been confirmed to be contaminated and no analytical results or remediation records are available. Given the lack of confirmed contamination, the down- to cross-gradient hydraulic relationship, and the distance from the Property, this site is considered to pose little to no environmental concern to the Property
309 Alexander Street	100 m South (Up-gradient)	Contaminated	In the summer of 2018, contamination was found in an area surrounding a previously removed fuel tank. Sampling was performed on the East and West walls as well as the base. Northern and southern wall samples were not collected. The west wall showed PHC concentrations which exceeded the applicable standards. No further remedial work was completed and the area was backfilled.	This site is inferred to be hydraulically up-gradient to the Property; however, given the limited extent of 2018 PHC impacts and the distance from the Property, it is considered to pose little to no environmental concern to the Property.
Yukon Centre Mall	100 m Northeast (Down to Cross-gradient)	Unknown	Some hydrocarbon contamination was encountered during mall construction and ~200 m3 of soil was removed from site. There are no underground tanks located in the area, so it was believed that this contamination was from a surface spill. There is no sampling info in	This site is inferred to be down- to cross-gradient of the Property. Despite an undocumented hydrocarbon excavation during construction, historical assessments identified a low potential for contamination. Given its orientation and distance, it

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
			the file, so it is unknown how contaminated the soil was all removed with the excavation. A Phase I Environmental Site Assessment was conducted in 2001 and 2004, which concluded that the possibility of contamination is low, and no further work is requested for the site.	poses little to no environmental concern to the Property.
Wheeler Street and 5th Avenue	120 m West (Cross-gradient)	Contaminated	From a Phase II ESA completed in 2017, confirmed hydrocarbon contaminated soils along the water main alignment on Wheeler Street between 4th and 5th Avenues. Site visits in July and August 2017 assess the level of contamination and recommend remedial treatment. Soil samples were collected from the west, south and east walls and the base of the excavated area. The north wall was not sampled as the material had previously been excavated. A total of 912 m3 of soil which was contaminated with PHCs was removed from the site. In situ groundwater samples from test pits, exceedances were present for manganese and hydrocarbons. An independent memo written in 2018 notes free-phase pooling of PHCs which when sampled far exceed the applicable Standards. This was located at 2.5mbgs on Wheeler Street between 7th and 8th and no material was removed from the site.	This site is located approximately 120 m west of the Property and is inferred to be hydraulically cross-gradient. The site has a documented history of petroleum hydrocarbon impacts, including significant soil contamination identified in 2017 and reported free-phase hydrocarbons in 2018. However, given the cross-gradient hydraulic relationship, the substantial distance from the Property, and the lack of evidence indicating potential migration toward the site, this location is considered to pose little to no environmental concern to the Property
New Salvation Army site, 4158 4th Avenue, Whitehorse, Yukon	120 m South (Up-gradient)	Remediated	Various environmental assessments were completed in 2014 – 2017. Approximately 1,600 m3 of soil was excavated and replaced with clean backfill. Confirmatory sampling indicated that all contaminated soil was removed from the property, however, residual PHC contamination in soil was identified off-site locations. Hydrocarbon and metal contamination in groundwater remained both on site and off site. On March 11, 2016 a letter of comfort issued to indicate that, based on the documentation provided, it appeared that all soil contaminated with PHCs in excess of the applicable standards had been removed from the areas of excavation. A risk assessment	This site is inferred to be hydraulically up-gradient. Extensive remediation between 2014 and 2017 removed contaminated soil, and a 2017 risk assessment concluded remaining impacts posed no unacceptable risk. Given its remediated status and distance from the Property, it is considered to pose little to no environmental concern to the Property.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
			completed in 2017 concluded that contamination in soil and groundwater did not pose an unacceptable risk to human health or the environment.	
Coldwell Banker	160 m South (Up-gradient)	Unknown	In February 2004, the removal of a fuel tank was completed and a heating oil leak was found which was suspected to have been ~100 - 200 gallons. ~20 - 24 m3 of contaminated soil snow and ice were removed from site. The entire contaminated area could not be excavated due to concerns about undermining the building stability. In Situ technology was installed. Additional soil was excavated in September 2004, however, no final results of remediation was submitted.	This site is inferred to be hydraulically up-gradient. Although a heating-oil release occurred in 2004 and partial excavation and in situ treatment were completed, the YG EPB lists the site status as unknown and no final remediation results were submitted. However, given its significant distance from the Property, the site is considered to pose little to no environmental concern to the Property.
Former Canadian Tire	180 m North (Down-gradient)	Remediated	In July 2007, approximately 25 tonnes of contaminated soil was excavated from the site. The source of spill was not defined. Sampling indicated that the soil remaining on site was below applicable standards.	This site is inferred to be hydraulically down-gradient to the Property. Contaminated soil was removed in 2007, and remaining soil met applicable standards. Given its remediated status, hydraulic orientation, and distance, this site is considered to pose little to no environmental concern to the Property.
Cook Street, Whitehorse, YT	190 m West (Cross-gradient)	Contaminated	Contaminated soil and water was encountered while completing road upgrades in 2021. Some of the material was relocated off site, but sample results indicate contaminated material was left in place. The site is considered contaminated.	This site is inferred to be hydraulically cross-gradient to the Property. Although contaminated soil and water were encountered during 2021 road upgrades and some impacted material remains in place, the site's hydraulic orientation and significant distance indicate that it poses little to no environmental concern to the Property.

5.1.2 Protective Services Yukon

Since 1998, YG PSB has maintained a registry of storage tanks on commercial properties. The registry includes records for permits that were issued for AST and UST installations, removals, and maintenance work on tanks with volumes over 4,000 L.

Upon review of the registry, Tetra Tech identified three permits for the Property: Permit Number 03053 for removal, which expired in December 2003; Permit Number 03052 for operation, which expired in December 2006; and Permit Number 03046 for the installation of a 25,000 L diesel tank, issued in August 2003 and expired later that year. At the time of reporting, Tetra Tech could not confirm whether the AST observed during the site visit is the 25,000 L diesel tank referenced in Permit 03046.

5.2 Government of Canada

5.2.1 Environment and Climate Change Canada Spills and Contaminated Sites Registry

Tetra Tech requested a search of the Environment and Climate Change Canada (ECCC) Spills and Registry and contaminated sites records on March 10, 2026, to determine if there have been any documented spills or records of contaminated land on the Property, historical to present. Tetra Tech received the results on April 7, 2026, which indicate no documented spills, records, or concerns associated with the Property. The search results can be found in Appendix G.

5.2.2 Federal Contaminated Sites Inventory

The Government of Canada maintains the FCSI database that contains environmental information pertaining to federally-regulated contaminated or potentially contaminated sites. The inventory also includes non-federally regulated contaminated sites for which the Government of Canada has accepted some or all financial responsibility. The FCSI is not a registry solely of contaminated sites. Some sites in the registry are characterized to have soil and groundwater exceeding the applicable standards, but most are simply being investigated and require little, if any, cleanup or they have already been cleaned up to applicable standards. A lack of information on a particular site does not indicate an absence of contamination, but only an absence of documentation in the FCSI.

Tetra Tech conducted an area search using this online database for registered sites within 200 m of the Property on March 10, 2026, and no contaminated site results were returned in the search. A copy of the FCSI site registry search results is attached in Appendix H.

5.3 Heritage Sites

Tetra Tech reviewed the Yukon Government's GeoYukon mapping tool for reported heritage sites. The Property is within the Kwanlin Dün First Nation and Ta'an Kwäch'än Council Traditional Territories. No known heritage sites have been identified on or adjacent to the Property.

5.4 Species at Risk

Tetra Tech reviewed the Critical Habitat for Species at Risk national dataset maintained by ECCC. There are no critical habitat areas containing the Property. There is a proposed critical habitat area for Brombus Bohemicus (Gypsy Cuckoo Bumble Bee), which includes the Property. A copy of the FCSI site registry search results is provided in Appendix I.

6.0 DISCUSSION

The following section discusses the findings of the Phase I ESA. Activities with the potential to be sources of contamination are termed "issues." Any issues that present a moderate or high potential for causing soil and/or groundwater contamination on the Property are termed APECs.

During the Phase I ESA, three APECs were identified for the Property. The APECs with the associated rationale are outlined in the following Table 6-1. APECs are shown in Figure 5.

Table 6-1: Areas of Potential Environmental Concern Rationale

APECs	Rationale
APEC 1 On-Property Former Gun Range	▪ The YG EPB Spills and Contaminated Sites Registry lists the Property "Whitehorse Elementary School" as contaminated, as the old gun range in the basement of the school was sampled and found to be heavily contaminated with metals, which were removed from the site in 2004. Subsequent sampling indicated that most of the metal was removed from the site; however, it was not entirely remediated. ▪ During the site visit, the old gun range was being used as a storage area for school equipment and furniture, and the flooring appeared to have been poured over with concrete. Because the gun range has not been fully remediated and remains on the Property, Tetra Tech considers it an APEC.
APEC 2 On-Property Historical UST Hydrocarbon Impacts	▪ The YG EPB Spills and Contaminated Sites Registry lists the Property "Whitehorse Elementary School" as contaminated, as soil sampling near the fuel tanks yielded hydrocarbon concentrations above the applicable standards. ▪ A historical report on UST removal at the Property indicated that the source of the contamination and the majority of the impacted soil were removed; however, a small pocket of contaminated soil may remain below approximately 3.4 m depth, with hydrocarbon concentrations potentially exceeding the Yukon Contaminated Sites Regulation (YCSR) standards. EBA anticipated that the remaining contamination would eventually degrade to below YCSR standards through natural attenuation, as the remaining impact was not considered significant. No further work was recommended. ▪ As the contamination likely remains in the subsurface at the former UST location (current AST location), Tetra Tech considers this an APEC.
APEC 3 Off-Property Whitehorse Motors	▪ The YG EPB Spills and Contaminated Sites Registry lists "Whitehorse Motors" as a contaminated site; it is 30 m west of the Property and is assumed to be hydraulically cross-gradient. However, given known local variability in groundwater flow directions, there remains potential for portions of the site to act as an up-gradient source depending on actual subsurface conditions. ▪ Since 2008, several contaminant releases have occurred at the site, including hydrocarbon-impacted soils associated with former fuel tanks, a court-mandated groundwater assessment related to illegal disposal into the sewer system, and a 2016 waste oil spill that resulted in additional soil excavation. ▪ Based on the documented history of petroleum impacts, multiple hydrocarbon releases, its contaminated status, and its close proximity to the Property, Tetra Tech considers this an APEC.

Due to the likely presence of hazardous building materials, a comprehensive, up-to-date hazardous building materials survey and any required abatement must be completed and documented prior to any renovation or demolition at the Property.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this Phase I ESA, the Property is occupied by the École Whitehorse Elementary, a three-storey concrete and brick elementary school building that was constructed in 1954. Prior to 1954 the Property housed an army barracks. The Property is relatively flat, and water drains into the underlying soils or onto the surrounding streets.

Three ASTs are currently on the Property. Two are propane tanks that supply air handling units and one is a heating oil tank that supplies the boilers. A 2003 EBA report documented a historical heating oil UST removal, which has been used to fuel the building's boilers. The report did not include UST details (e.g., size, contents) but noted that residual hydrocarbon concentrations may remain at about 3.4 m below ground surface and observed a hydrocarbon sheen in groundwater during excavation.

A March 2015 report completed by Summit Environmental identified multiple hazardous building materials at the Property. Limited visual assessment was possible because snow cover restricted the identification of stains and other suspect materials. Records review also identified a former on-Property gun range in the basement. Whitehorse Motors, located 30 m west of the Property (cross-gradient), was listed as a contaminated site in the Yukon Contaminated Sites Registry.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, three APECs were identified for the Property.

Table 7-1: Areas of Potential Environmental Concern

Areas of Potential Environmental Concern (APECs)	Potential Contaminants of Concern (PCOCs)
APEC 1 – On-Property Former Gun Range	Metals
APEC 2 – On-Property Historical UST Hydrocarbon Impacts	LEPH, HEPH, PAH, VPH, and BTEXs
APEC 3 – Off-Property Whitehorse Motors	LEPH, HEPH, PAH, VPH, and BTEXs

Notes: LEPH - Light Extractable Petroleum Hydrocarbons
HEPH - Heavy Extractable Petroleum Hydrocarbons
PAHs - Polycyclic Aromatic Hydrocarbons
BTEXS - Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene
VPHs - Volatile Petroleum Hydrocarbons

Tetra Tech recommends that a Phase II ESA be completed to assess if the identified APECs have impacted the Property. Tetra Tech also recommends that the Property be inspected again in snow-free conditions to confirm the absence of staining, signs of underground utilities, and/or stressed vegetation. Moreover, due to the likely presence of hazardous building materials, a comprehensive, up-to-date hazardous building materials survey and any required abatement must be completed and documented prior to any renovation or demolition at the Property.

8.0 CLOSURE

Conclusions and recommendations presented herein are based on a visual site inspection, discussion with personnel and historical information that was reviewed at the time of this investigation. This report has been prepared based on the scope of work approved by, and for the use of, Kobayashi + Zedda Architects, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

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

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

704-ENG.WARC04470-03.003
704-ENG.WARC04470-03.003
704-ENG.WARC04470-03.003

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704-ENG.WARC04470-03.003
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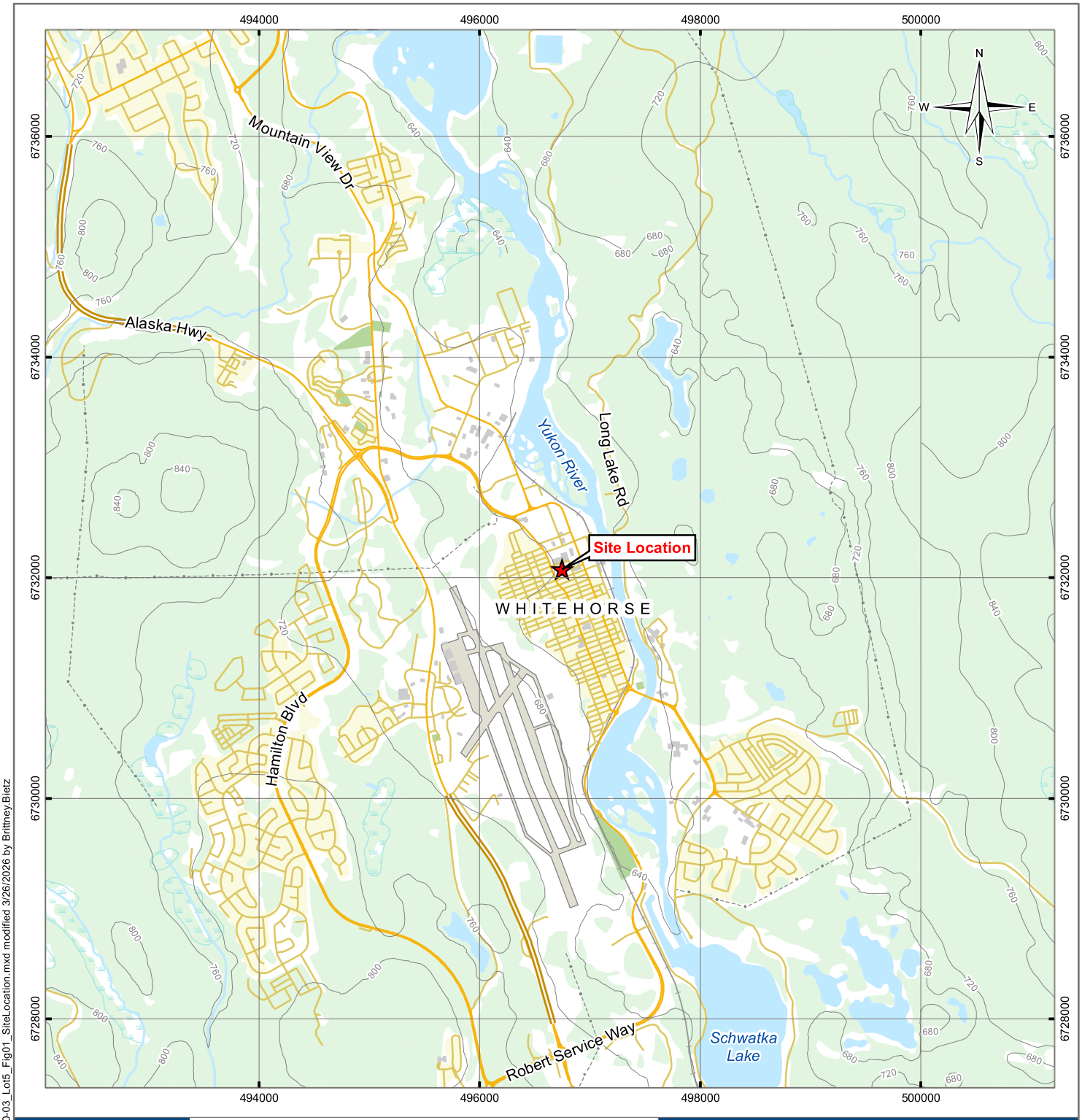
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FIGURES

Figure 1 Site Location
Figure 2 Property Plan
Figure 3 Surrounding Land Use Plan
Figure 4a-4l Historical Aerial Imagery
Figure 5 APEC Plan



LEGEND

- Site Location
- Highway
- Main Road
- Local Road
- Railway
- Power Line
- Runway
- Building
- Park
- Residential Area
- Contour (40 m)
- Watercourse
- Waterbody
- Wetland
- Wooded Area

NOTES
Base data source: CanVec 1:50,000.

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5
WHITEHORSE, YUKON

Site Location

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:50,000
1 0.5 0 1
Kilometres

TETRA TECH

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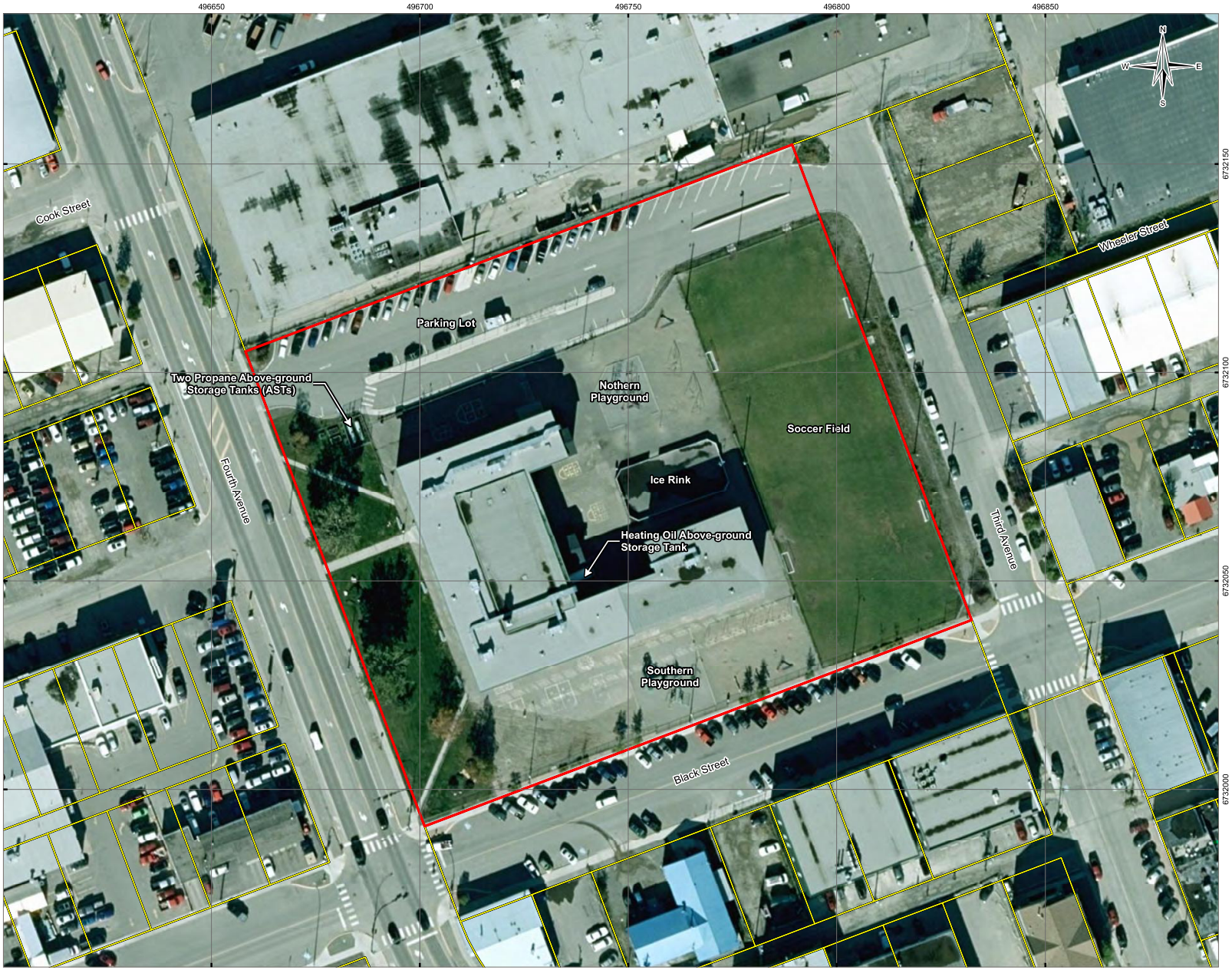
OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	SL	KK	0

DATE
March 26, 2026

PROJECT NO.
ENG.WARC04470-03

Figure 1

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LEGEND

- Site Boundary
- Parcel Boundary

NOTES
Base data source:
Parcel data: Government of Yukon
Imagery: ESRI, Vantor (2024)

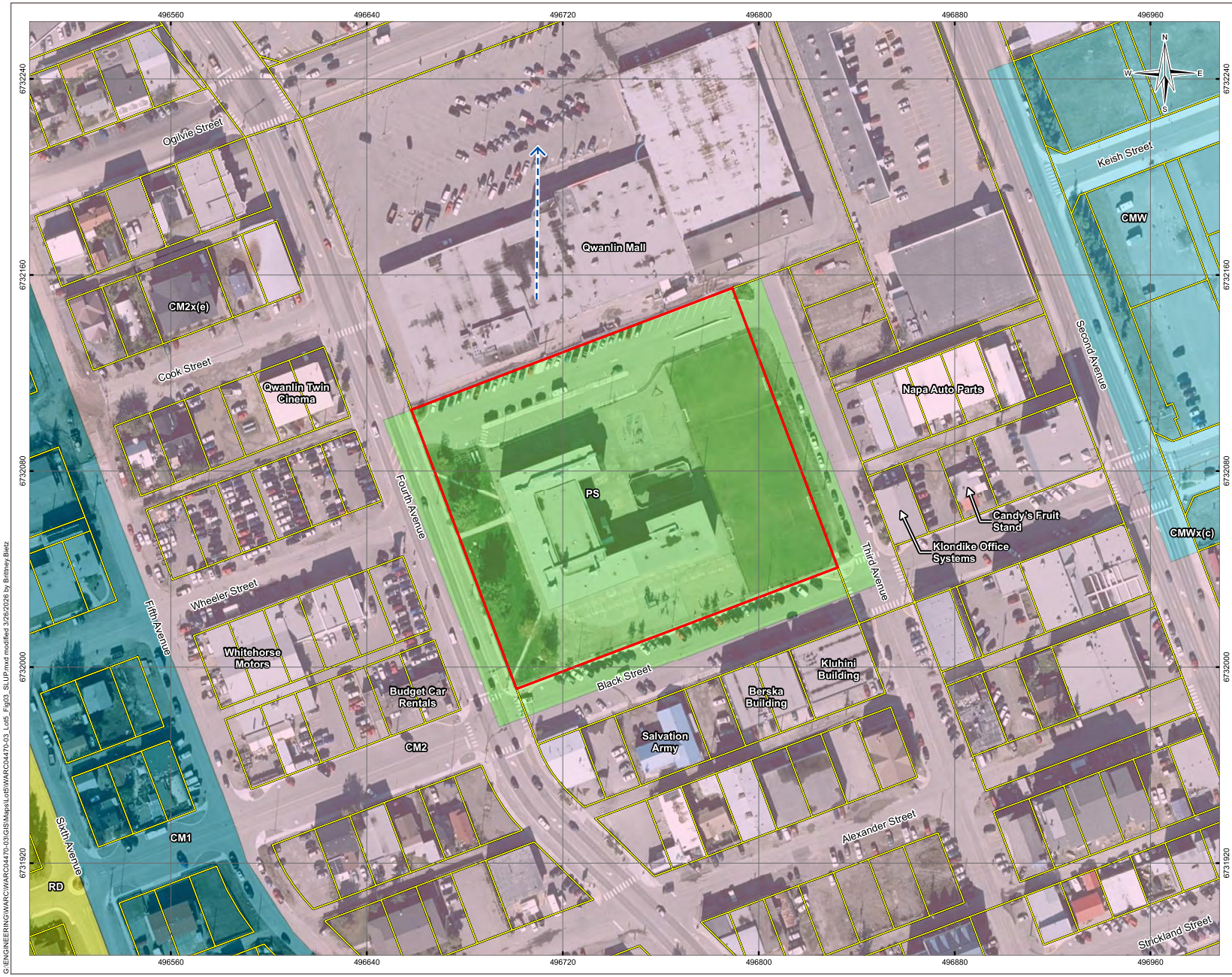
STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5
WHITEHORSE, YUKON

Property Plan

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:900 10 5 0 10 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig02_PropertyPlan.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** SL	**APVD** KK	**REV** 0	**Figure 2**
DATE March 26, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Site Boundary
- Parcel Boundary
- Inferred Groundwater Flow Direction

Zoning Description

- Mixed Use Commercial (CM1)
- Mixed Use Commercial 2 (CM2x(e))
- Mixed Use Waterfront (CMW)
- Public Services (PS)
- Residential Downtown (RD)

NOTES
Base data source:
Parcel data: Government of Yukon
Zoning data: City of Whitehorse
Imagery: ESRI, Vantor (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5
WHITEHORSE, YUKON

Surrounding Land Use Plan

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:1,500
30 15 0 30
Metres

TETRA TECH

FILE NO.				
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Tt-VANC	BB	SL	KK	0
DATE	**PROJECT NO.**			
March 26, 2026	ENG.WARC04470-03			

Figure 3

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LEGEND

Site Boundary

NOTES
Base imagery source: Government of Yukon (1946)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1946

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
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DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Government of Yukon (1952)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1952

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4b**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1961)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1961

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
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DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Natural Resources Canada (1963)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1963

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
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OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4d**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1965)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1965

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4e**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

G:\ENGINEERING\WARC\WARC04470-03\GIS\Maps\Lot5\WARC04470-03_Lot5_Fig04_Historical.mxd modified 3/24/2026 by Brittney.Bietz



LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1976)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1976

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4f**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1985)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1985

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4g**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1995)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
1995

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4h**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (2001)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery
2001

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4i**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Natural Resources Canada (2014)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery 2014

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4j**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Natural Resources Canada (2019)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery 2019

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 — 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4k**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: ESRI, Vantor (2024)

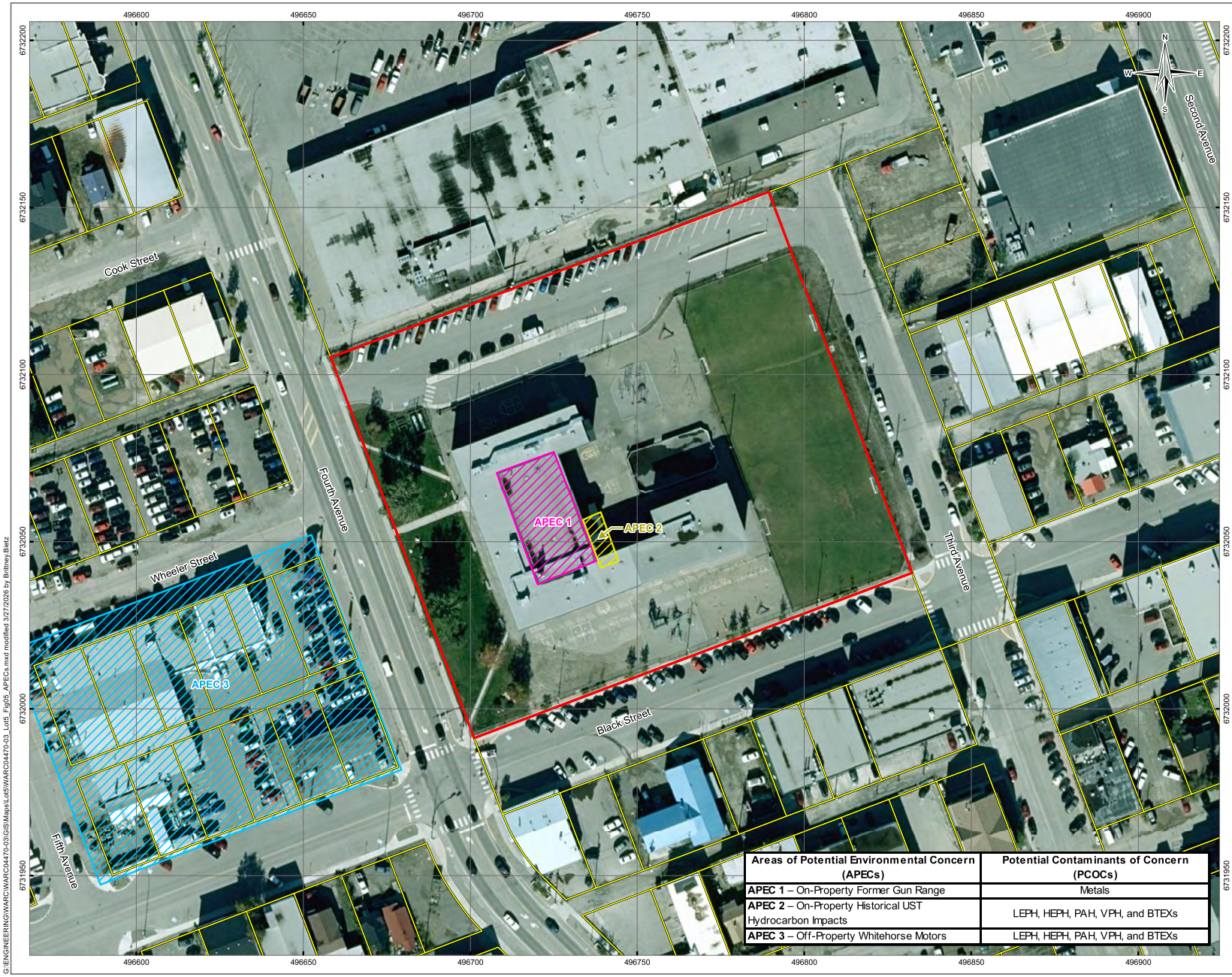
STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5 DOWNTOWN
WHITEHORSE, YUKON

Historical Aerial Imagery 2024

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 40 20 0 40 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4I**
DATE March 24, 2026	**PROJECT NO.** ENG.WARC04470-03				

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Areas of Potential Environmental Concern (APECs)	Potential Contaminants of Concern (PCOCs)
APEC 1 – On-Property Former Gun Range	Metals
APEC 2 – On-Property Historical UST Hydrocarbon Impacts	LEPH, HEPH, PAH, VPH, and BTEXs
APEC 3 – Off-Property Whitehorse Motors	LEPH, HEPH, PAH, VPH, and BTEXs

LEGEND

- Site Boundary
- Parcel Boundary

Area of Potential Environmental Concern (APEC)

On-site APEC

- APEC 1
- APEC 2

Off-site APEC

- APEC 3

NOTES

Base data source:
Parcel data: Government of Yukon
Imagery: ESRI, Vantor (2024)

LEPH - Light Extractable Petroleum Hydrocarbons
HEPH - Heavy Extractable Petroleum Hydrocarbons
PAHs - Polycyclic Aromatic Hydrocarbons
BTEXS - Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene
VPHs - Volatile Petroleum Hydrocarbons

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 5
WHITEHORSE, YUKON

APEC Plan

PROJECTION UTM Zone 8			**DATUM** NAD83		**CLIENT** Kobayashi + Zedda Architects
Scale: 1:1,100 — 20 10 0 20 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot5_Fig05_APECs.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** SL	**APVD** KK	**REV** 0	**Figure 5**
DATE March 27, 2026	**PROJECT NO.** ENG.WARC04470-03				

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PHOTOGRAPHS

Site Photographs 1 - 28

Photo 1	View of the Property's main entrance.
Photo 2	View of the stairs inside the Property, looking from the first floor toward the main entrance.
Photo 3	View of the reception area on the Property's 1st floor.
Photo 4	View of the library on the Property's 1st floor.
Photo 5	View of the gym on the Property.
Photo 6	View of the electrical lift on the Property.
Photo 7	View of cleaning products (bleach, disinfectant cleaner concentrate) found in one of the janitorial room.
Photo 8	View of the Property's boiler room.
Photo 9	View of the Vanfrost 50/50 fluid found in the Property's boiler room.
Photo 10	View of the pails and Dowfrost fluid found in the Property's boiler room.
Photo 11	View of chemicals stored in the science storage room.
Photo 12	Another view of various chemicals stored in the science storage room.
Photo 13	View of the old gun range in the Property's basement.
Photo 14	Another view of the old gun range in the Property's basement.
Photo 15	View of the hallway in the Property, with fluorescent light tubes.
Photo 16	View of two propane ASTs in the northwestern outdoor portion of the Property.
Photo 17	View of the heating oil AST in the centre outdoor portion of the Property.
Photo 18	View of the ice rink on the eastern outdoor portion of the Property.
Photo 19	View of the playground in the southern outdoor portion of the Property.
Photo 20	View of garbage/cardboard bins in the northwestern outdoor portion of the Property.
Photo 21	View of surrounding sites, NAPA Auto Parts.
Photo 22	View of surrounding sites, the Salvation Army building.
Photo 23	View of surrounding sites, Whitehorse Motors building.
Photo 24	View of surrounding sites, rear area of the Whitehorse Motors building.
Photo 25	View of surrounding sites, Qwanlin Mall north of the Property.
Photo 26	View of surrounding sites, 3rd Avenue looking southeast.
Photo 27	View of surrounding sites, Black Street looking northwest.
Photo 28	View of surrounding sites, 4th Avenue looking northeast.



Photo 1: View of the Property's main entrance.

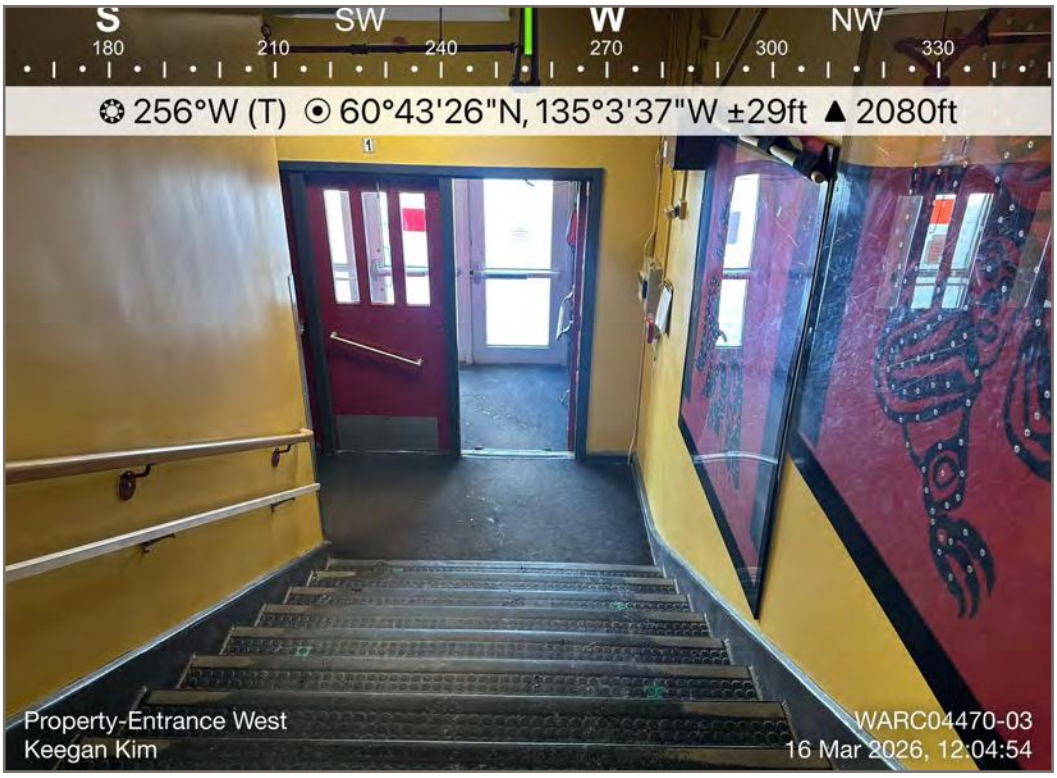


Photo 2: View of the stairs inside the Property, looking from the first floor toward the main entrance.

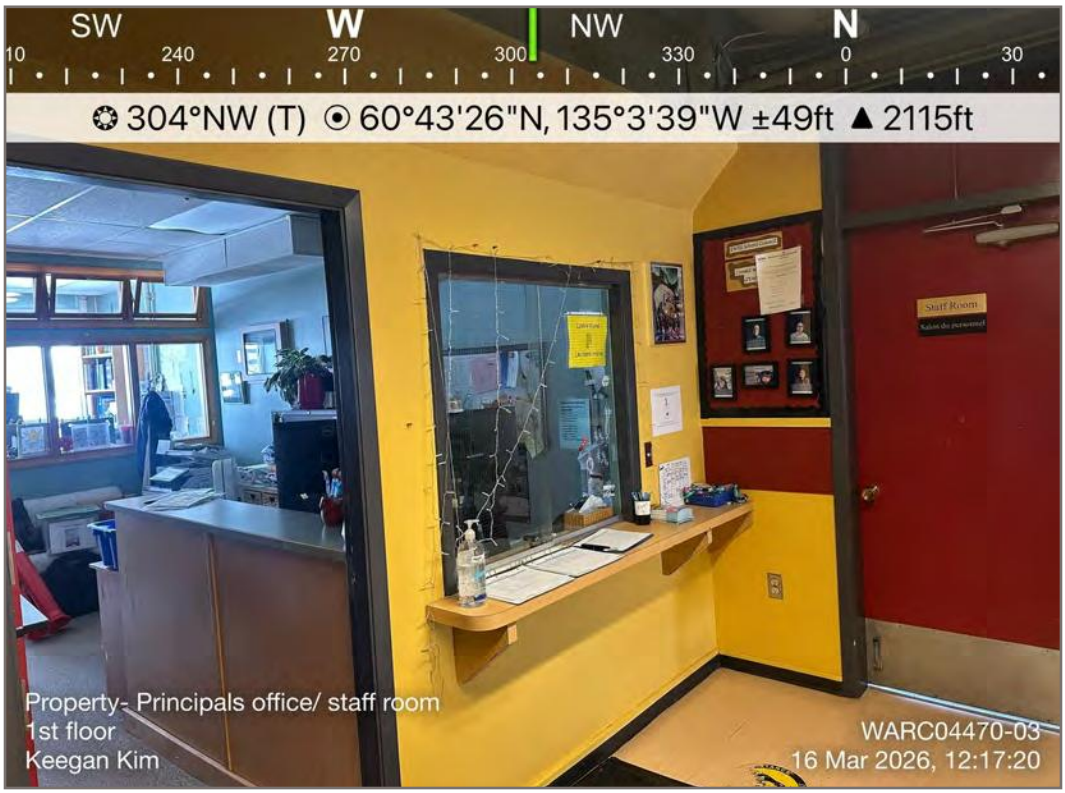


Photo 3: View of the reception area on the Property's 1st floor.

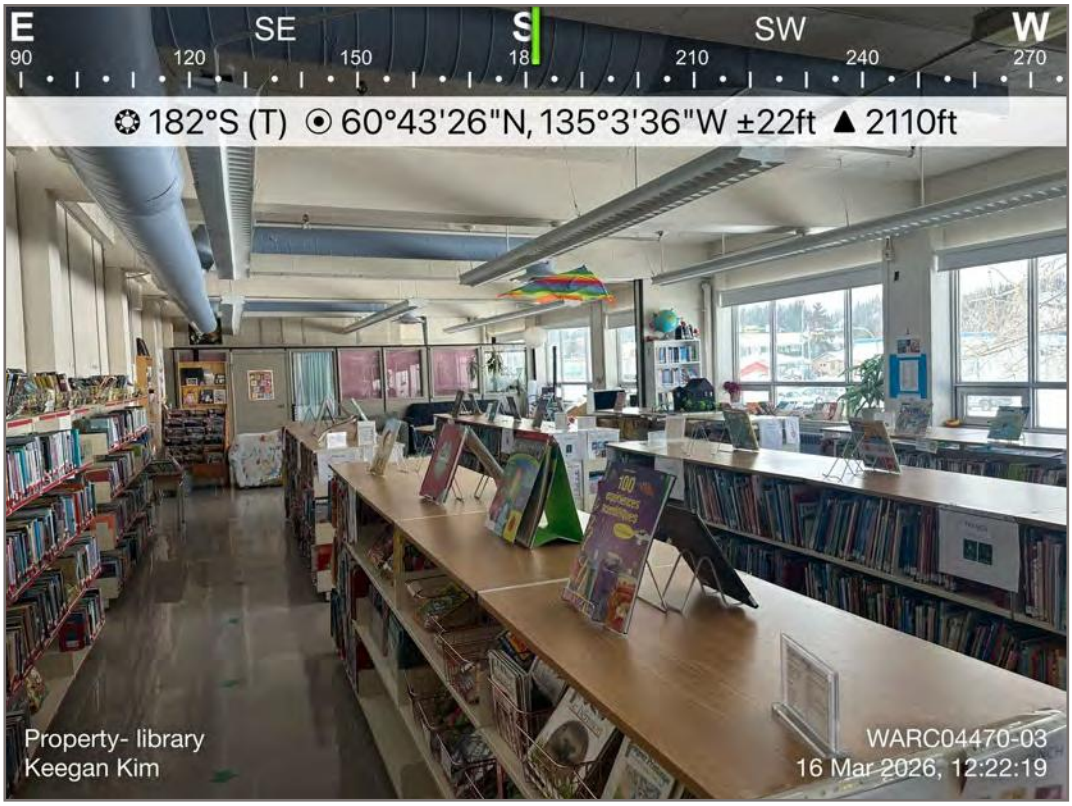


Photo 4: View of the library on the Property's 1st floor.

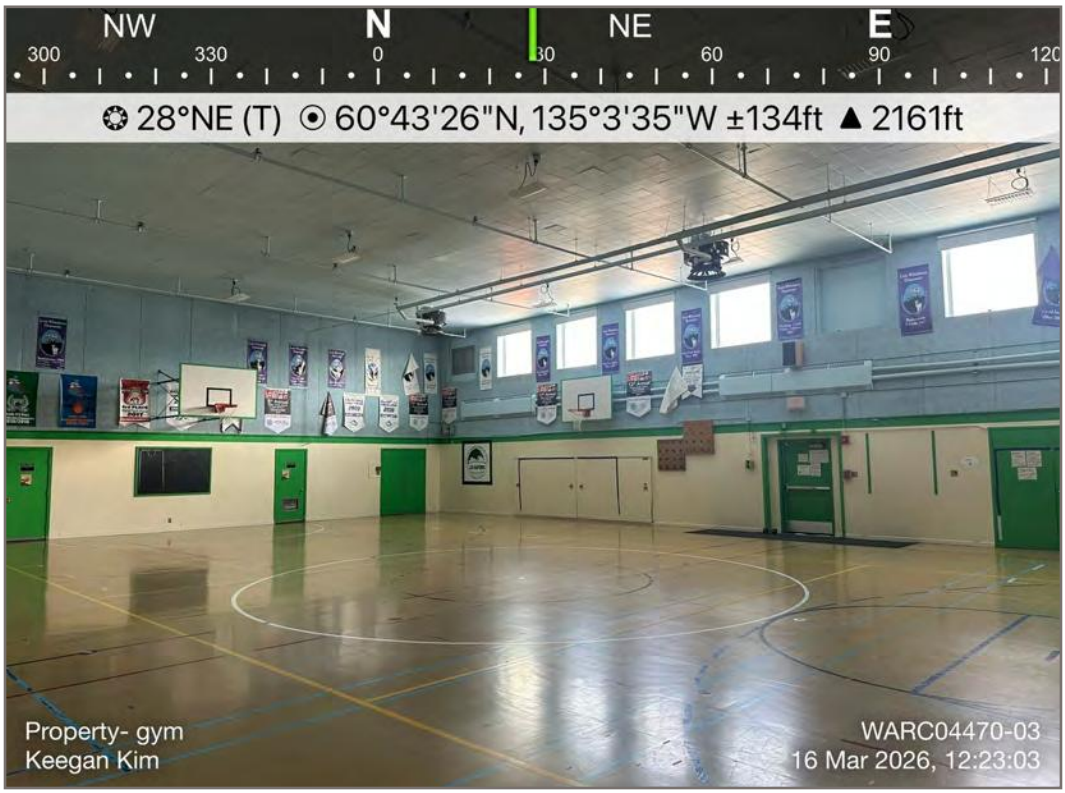


Photo 5: View of the gym on the Property.



Photo 6: View of the electrical lift on the Property.



Photo 7: View of cleaning products (bleach, disinfectant cleaner concentrate) found in one of the janitorial room.

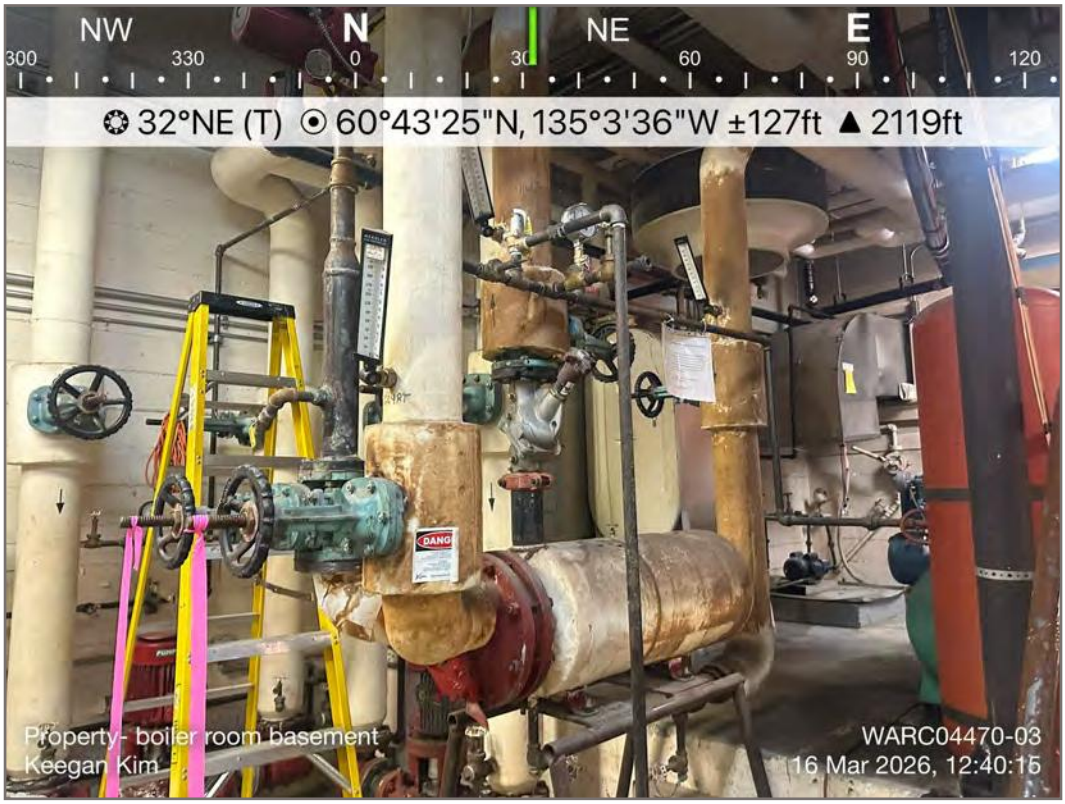


Photo 8: View of the Property's boiler room.

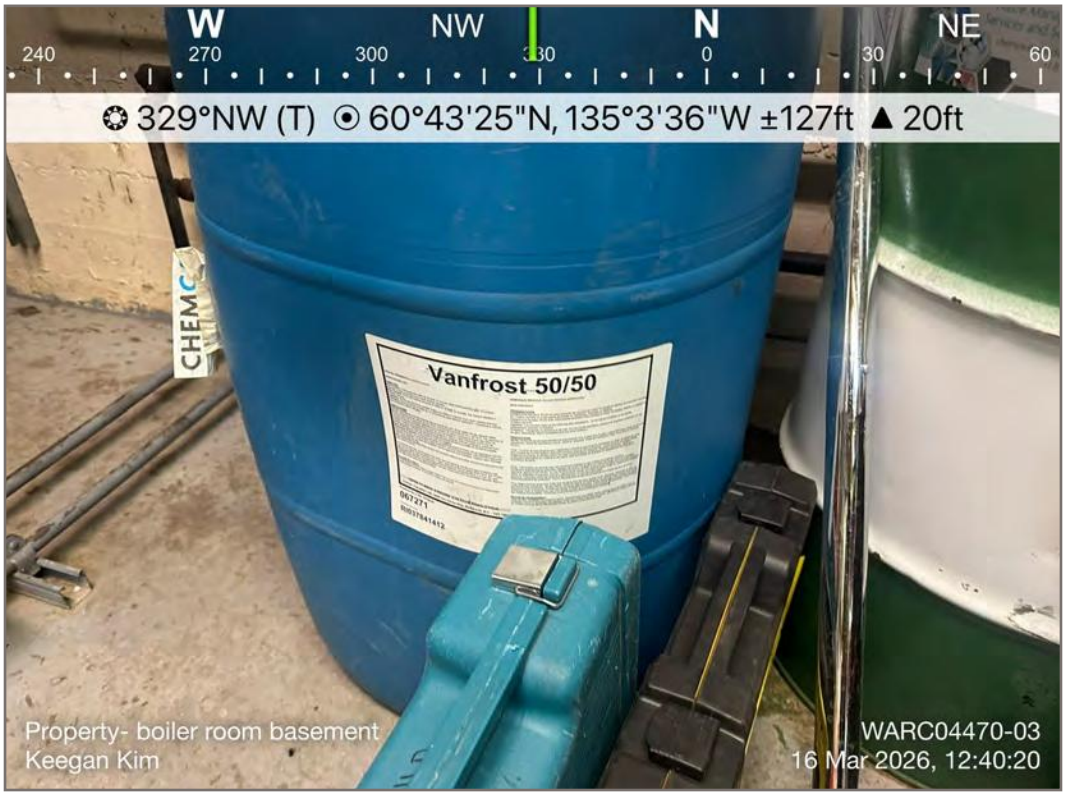


Photo 9: View of the Vanfrost 50/50 fluid found in the Property's boiler room.



Photo 10: View of the pails and Dowfrost fluid found in the Property's boiler room.

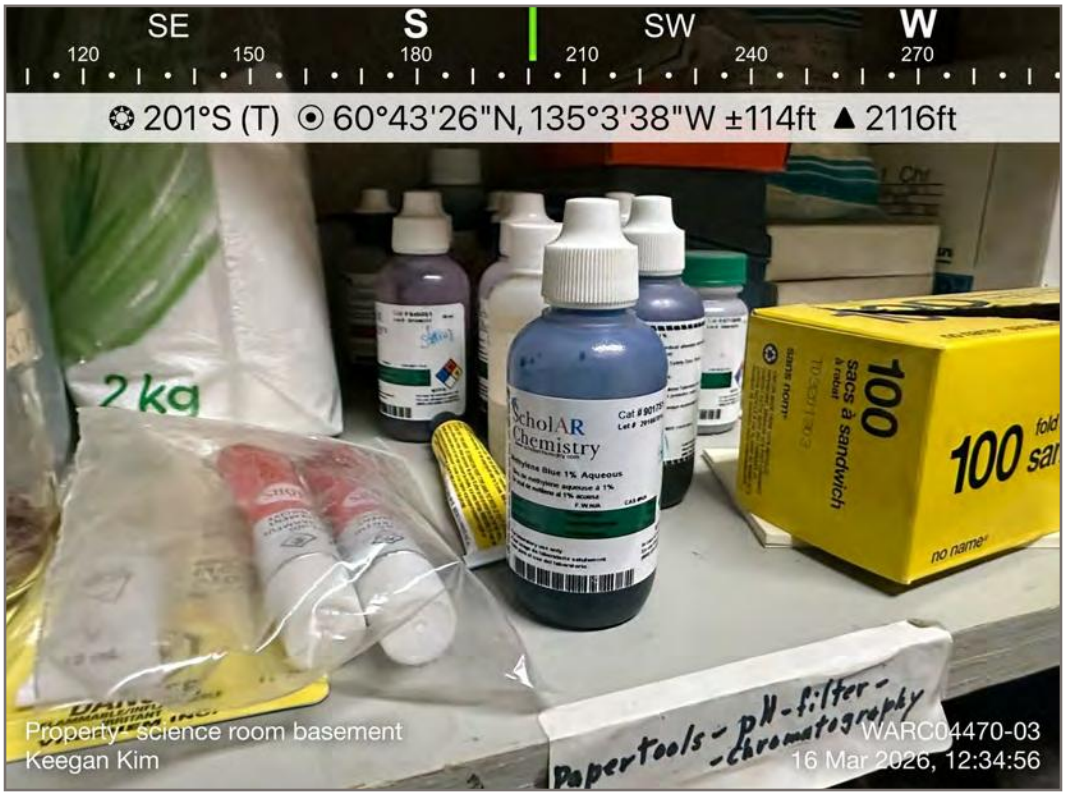


Photo 11: View of chemicals stored in the science storage room.

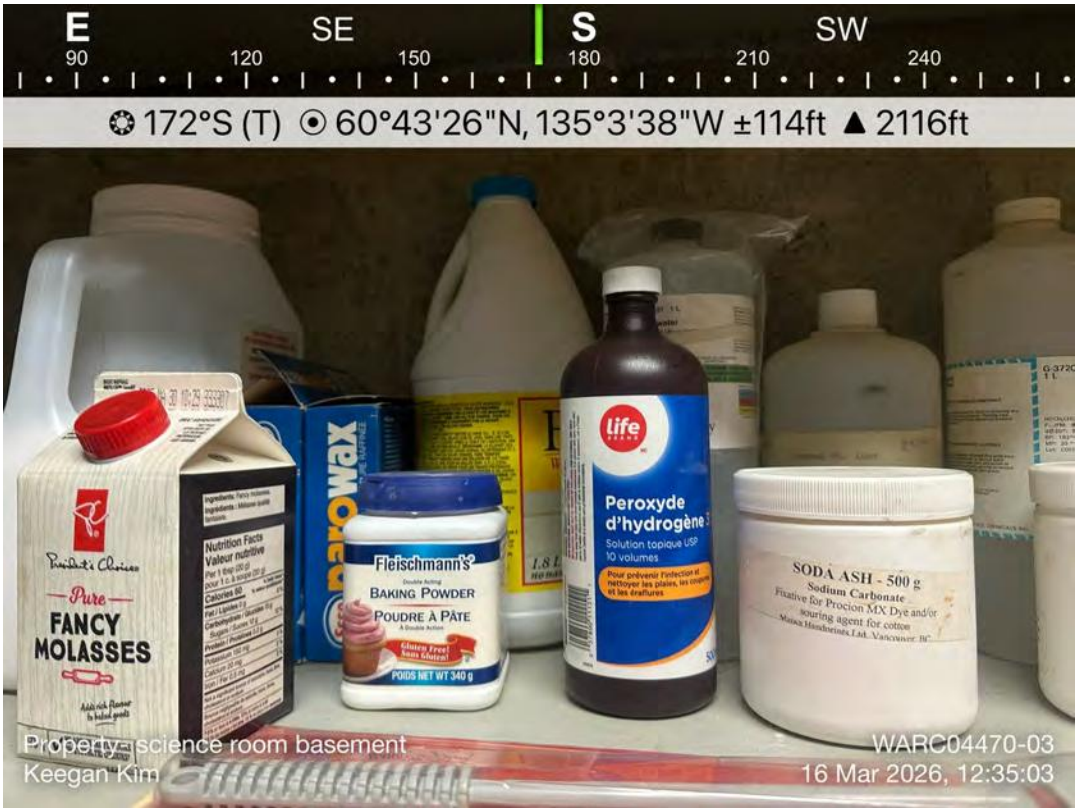


Photo 12: Another view of various chemicals stored in the science storage room.

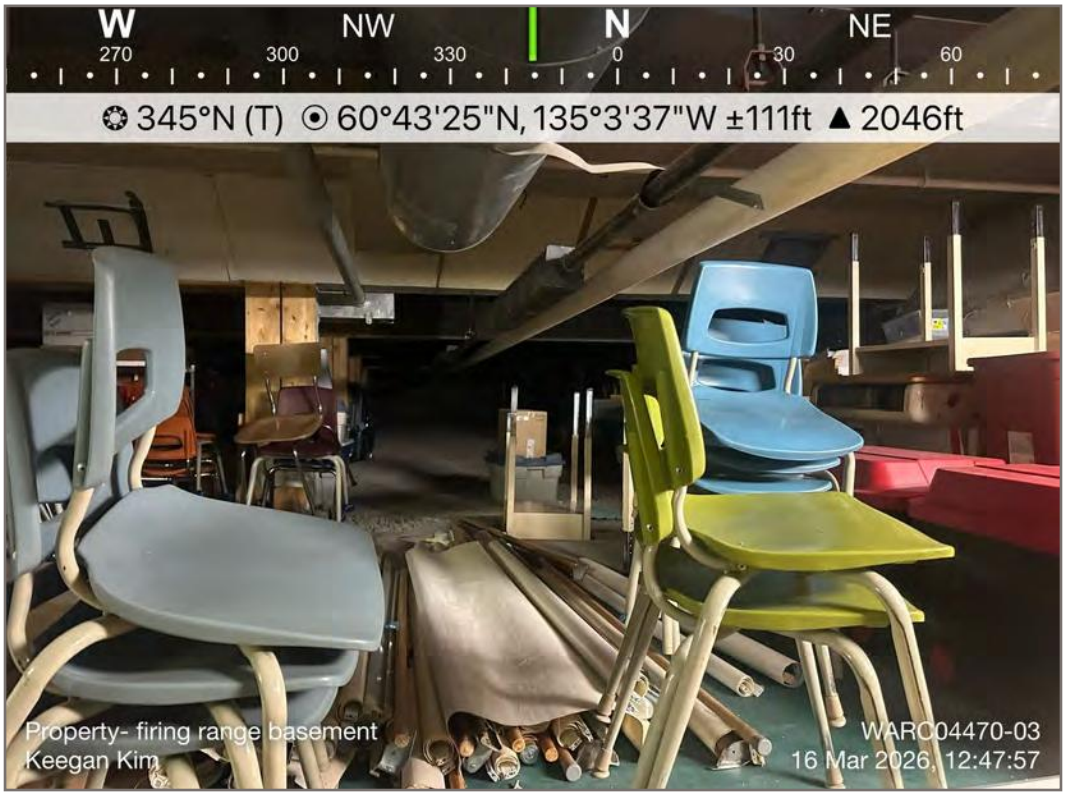


Photo 13: View of the old gun range in the Property's basement.



Photo 14: Another view of the old gun range in the Property's basement.

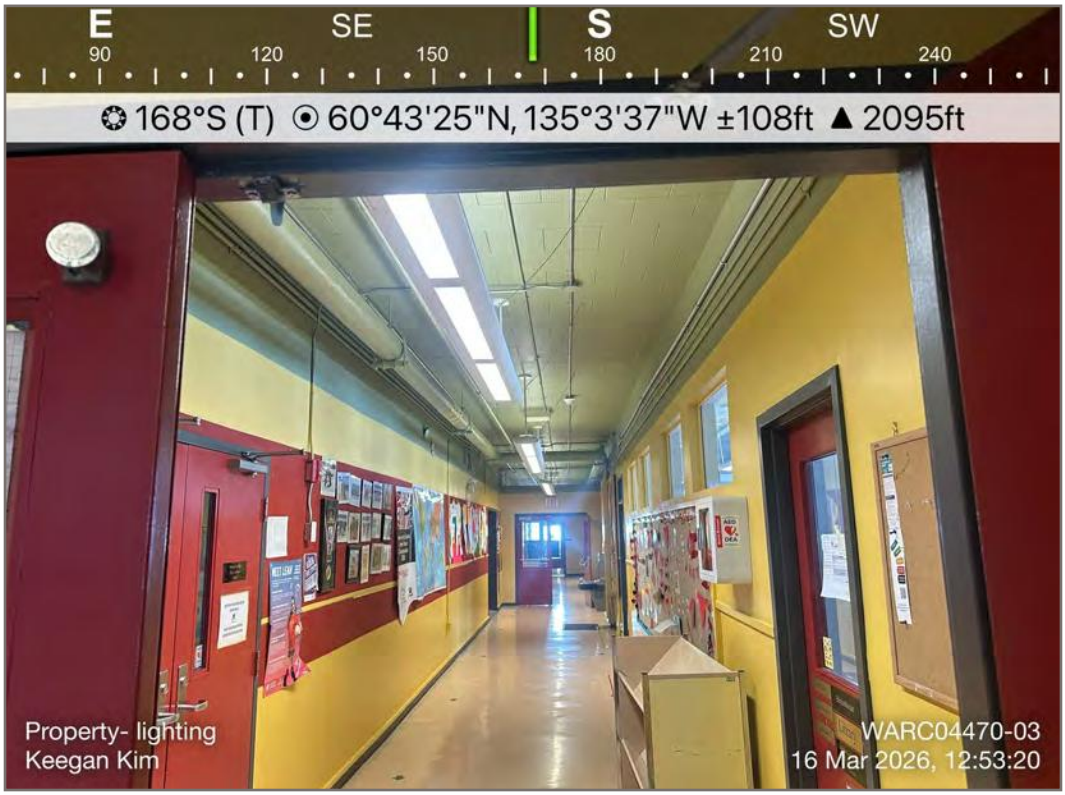


Photo 15: View of the hallway in the Property, with fluorescent light tubes.



Photo 16: View of two propane ASTs in the northwestern outdoor portion of the Property.



Photo 17: View of the heating oil AST in the centre outdoor portion of the Property.

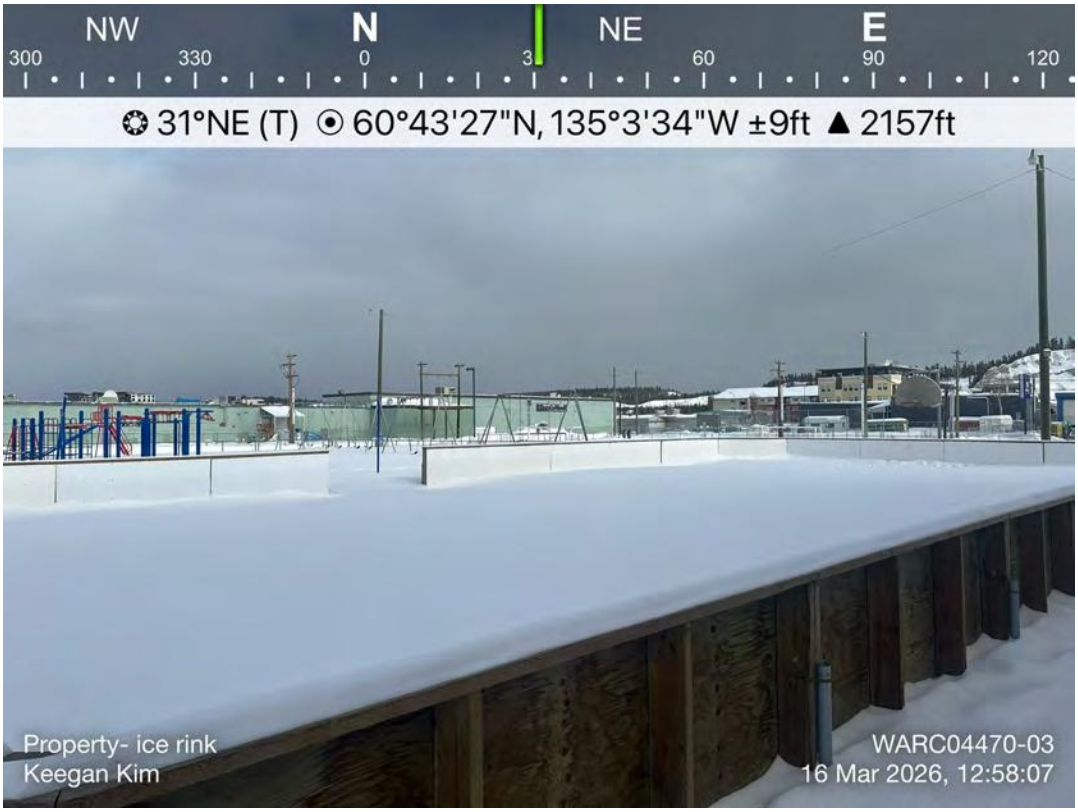


Photo 18: View of the ice rink on the eastern outdoor portion of the Property.



Photo 19: View of the playground in the southern outdoor portion of the Property.



Photo 20: View of garbage/cardboard bins in the northwestern outdoor portion of the Property.



Photo 21: View of surrounding sites, NAPA Auto Parts.



Photo 22: View of surrounding sites, the Salvation Army building.



Photo 23: View of surrounding sites, Whitehorse Motors building.



Photo 24: View of surrounding sites, rear area of the Whitehorse Motors building.

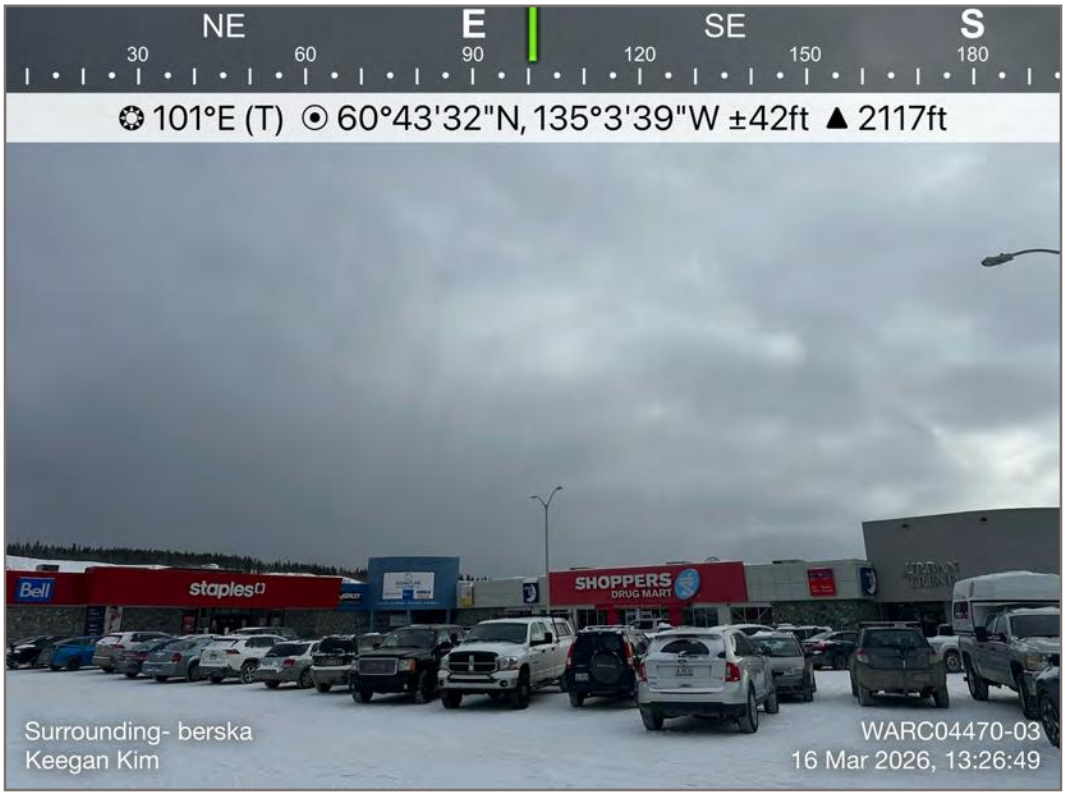


Photo 25: View of surrounding sites, Qwanlin Mall north of the Property.



Photo 26: View of surrounding sites, 3rd Avenue looking southeast.

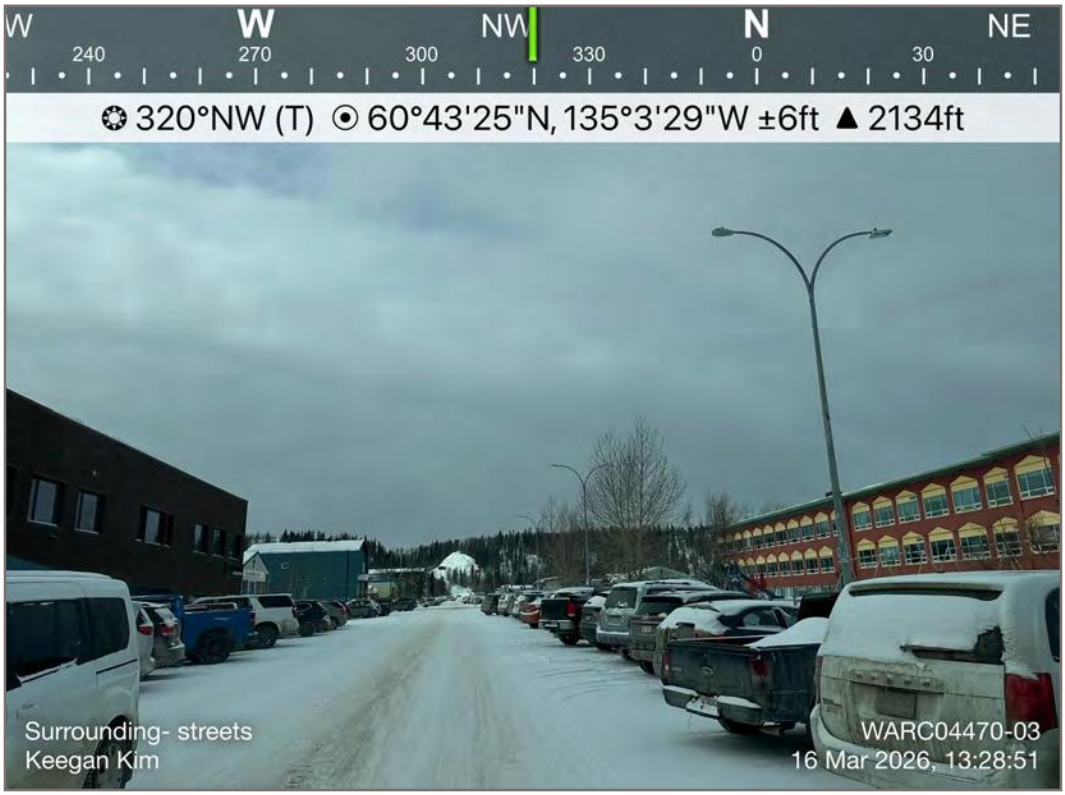


Photo 27: View of surrounding sites, Black Street looking northwest.



Photo 28: View of surrounding sites, 4th Avenue looking northeast.

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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 persons 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 report, at or on the development proposed as of the date of the Professional Document requires a supplementary 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 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

LAND TITLES SEARCH RESULTS

CERTIFICATE OF TITLE

Yukon • Canada

FEE SIMPLE

Yukon Land Registration District • Land Titles Office

Title #: 100237373
Title Status: Active
Parcel Value: $100.00
Title Value: $100.00
Last Title Transfer Value: $100.00
Converted Title #: 87Y943
Previous Title #: 87Y943
Title Creation Packet: 100201431

As of: 05 Mar 2026 11:33:24.000
Last Amendment Date: 20 Apr 2022 11:45:00.106
Issued: 20 Apr 2022 11:45:00.090
Community: Whitehorse
CLSR #: 41582
Grant #: 4083
Parcel Type: Surface Parcel
Parcel Class: Unknown

This is to certify that

Commissioner of Yukon

is the registered owner of an estate in fee simple in

> **Legal Land Description:**
> Parcel #100161515; or
> Lot 5 PCL A Group/Quad 804, Whitehorse, YT, Plan No. 20076

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:**
Commissioner of Yukon Client #: 100001091	Box 2703, Whitehorse, YT, Canada, Y1A2C6

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.



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.

HISTORICAL SEARCH as of January 10, 2012
Lot 5, Parcel A, Plan 20076

Patent #:	**4083**
Transferred to:	Harvey Graham
Legal Description:	Group Lot #5, Group 5, Yukon Territory, Plan 8406
Registered:	June 14, 1901
Certificate of Title #:	**19F**
Registered Owner:	Samuel H. Graves
Legal Description:	Group Lot 5, Group 5, Yukon Territory, Plan 8406
Registered:	June 18, 1902
New C of T #:	60 W
Certificate of Title #:	**60W**
Registered Owner:	British Yukon Land Company Limited
Legal Description:	Lot 5, Group 5, Yukon Territory, Plan 8406 Saving and excepting Portions 1 & 2
Registered:	May 21, 1923
New C of T #:	143AA
Certificate of Title #:	**143AA**
Registered Owner:	The British Yukon Railway Co.
Legal Description:	Lot 5, Group Lot 5, Yukon Territory, Plan 8406 Saving & Excepting Portions 1 & 2
Registered:	July 31, 1940
New C of T #:	
Certificate of Title #:	**259GG**
Registered Owner:	The British YukonRailway Company
Legal Description:	Parcel A, Group Lot 5, Group 804, Yukon Territory Plan 20076
Registered:	April 1, 1953
New C of T #:	300GG
Certificate of Title #:	**300GG**
Registered Owner:	Her Majesty Queen Elizabeth the Second
Legal Description:	Whole of Parcel A, Group Lot 5, Group 804, Yukon Territory, Plan 20076
Registered:	May 21, 1953
New C of T #:	87Y943 (see attached photocopies)

Certificate of Title

Canada

Yukon Territory

Yukon Land Registration District

This is to certify that Commissioner of Yukon

is now the owner of an estate in fee simple of and in

Parcel "A",

Group Lot Five (5),

Group Eight Hundred and Four (804),

Yukon Territory,

plan 20076;

CANCELLED
ON
APR 2 0 2022
FOR
CONVERSION

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

In Witness Whereof, I have hereunto subscribed my name and affixed my official seal.

this 7th day of August 1987.

P.O. Address
Box 2703,
Whitehorse, Y.T.
Y1A 2C6

Registrar, Yukon Land Registration District

Certificate of Title No.
87Y943

LAND TITLES ACT, SEC. 73: The title granted to the land mentioned in any certificate of title granted under this Act is, by implication, and without any special mention in the certificate, unless the contrary is expressly declared, subject to

(a) any subsisting reservations or exceptions contained in the original grant from the Crown;
(b) all unpaid taxes;
(c) any public highway or right of way or other public easement, howsoever created, upon, over or in respect of the land;
(d) any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(e) any decrees, orders or executions against or effecting the interest of the owner in the land, that have been registered and maintained in force against the owner;
(f) any right of expropriation that may, be statute or ordinance, be vested in the Crown or in any person or body corporate; and
(g) any right of way or other easement granted or acquired under the provisions of the **Irrigation Act**.

From 300GG

Trans.fer 83739 Patent 4083 $ 100.00

Subject to Mechanic's Lien by Fred's Plumbing & Heating Limited dated 21 September/90 and registered at 2:46 o'clock, P.M. this 25th September 1990 under No. 97655

REGISTRAR

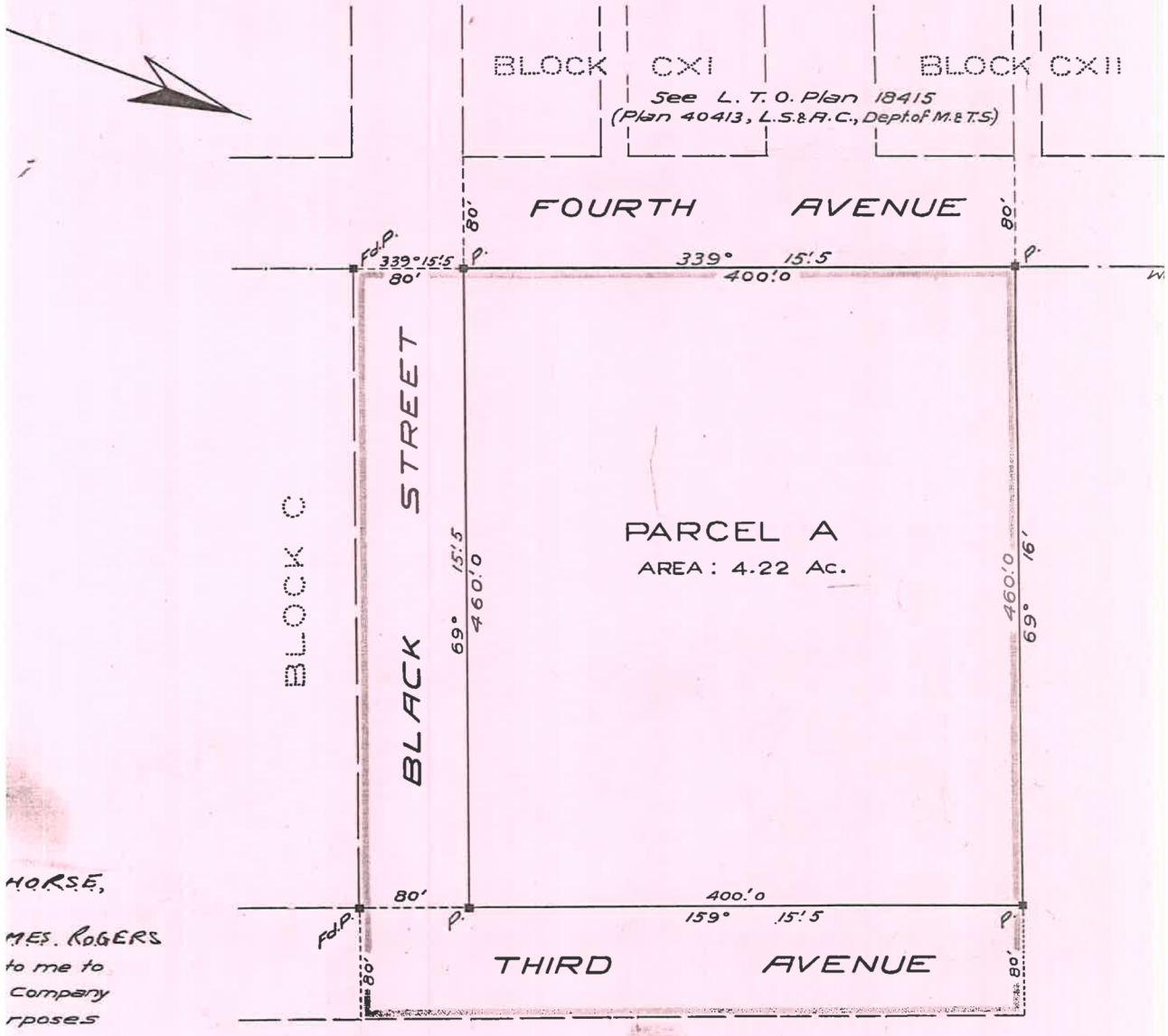
Expired by Operation of Law - Section 22 of the Builders Lien Act

IAND 52-20-1 (10-68)

WHITEHORSE
YUKON TERRITORY

SCALE 100 FEET TO AN INCH

Surveyed by J. B. Walcot, D.L.S., 13th June, 1951



HORSE,

MES. ROGERS
to me to
Company
rposes

EHORSE.,
scribing

AMES. ROGERS
ars.

Ⓜ

APPENDIX C

CITY OF WHITEHORSE ZONING MAPS

MAP 15

DOWNTOWN



Where a letter appears in brackets following a zoning designation, e.g. RSx(a), the letter corresponds to the 'special modifications' subsection for that zone.

N

0 440

Meters

Projection: NAD 1983 UTM Zone 8

Consolidation date: February 18, 2025

12.4 PS Public Services

12.4.1 Purpose

To provide a zone for public and privately owned facilities of an institutional or community service nature

12.4.2 Principal Uses

a) cemeteries
b) child care centres
c) community gardens and greenhouses
d) community recreation services
e) emergency and protective services
f) exhibition and convention facilities
g) extended medical treatment services
h) funeral services
i) housing: supportive, temporary shelter services
j) indoor participant recreation services
k) institutional services
l) parks
m) public, private, and commercial schools
n) religious assemblies
o) scientific and cultural exhibits
p) spectator entertainment establishments

12.4.3 Secondary Uses

a) accessory building/structure
b) caretaker residence
c) eating and drinking establishments
d) health services

12.4.4 Conditional Uses

a) detention and correction services
b) housing: multiple, single detached, duplex (***Bylaw 2015-01–March 23, 2015***)
c) outdoor participant recreation services
d) spectator sports establishments

12.4.5 Development Regulations

a) The minimum lot width is 20.0 m.

b) The minimum lot area is 850 m^2.

c) The maximum floor area ratio is 0.9. (***Bylaw 2016-07 – March 29, 2016***)

d) The maximum site coverage is 45%.

e) The maximum height is 20.0 m, except where otherwise indicated in Appendix C of this bylaw. (***Bylaw 2018-12 passed April 9, 2018***)

f) The minimum front yard is 6.0 m.

g) The minimum side yard is 3.0 m.

h) The minimum rear yard is 7.5 m.

12.4.6 Other Regulations

a) A comprehensive development plan outlining proposed setbacks, landscaping, lighting, fencing and other security measures is required for an application for detention and corrective services.

b) New development resulting in new buildings and/or site disturbance that falls within the area specified in Appendix D – Moderate Geo-hazard Area, requires a site-specific geotechnical evaluation in the form and substance acceptable to the City Engineer, and implementation of any mitigation measures required by the City Engineer. (***Bylaw 2013-20 passed July 8, 2013***)

c) In addition to the regulations listed above, other regulations may apply. These include the general development regulations of section 5 (accessory development, site design, yards, etc.); the specific use regulations of section 6 (child care services, etc.), the parking regulations of section 7, and the sign regulations of section 8.

12.4.7 Special Modifications

a) Lot 1110 Granger, located at 149 Wilson Drive, is designated PSx, the special modification being that only religious assemblies, private clubs and parks are permitted.

b) Lots 174 and 175 Porter Creek, located at 1607 and 1609 Birch Street, are designated PSx, the special modification being that only religious assemblies and child care centres are permitted as principal uses.

c) Lot 519 Copper Ridge, located at the corner of Falcon Drive and Diamond Way, is designated PSx, the special modification being that only schools, parks, outdoor participant recreation services, community recreation services and religious assemblies are permitted as a principal use, and only accessory buildings/structures are permitted as a secondary use.

d) Lot 1172, Quad 105D/11, Plan 84109 CLSR YT, Lot 341, Group 804, Plan 43448 CLSR YT, and Parcel A Lot 332, Group 804, Plan 42448 CLSR YT, located at 18 Selkirk Street, is designated PSx with the special modification being that Public Utilities is permitted as a principal use, provided that the Public Utilities use is limited to water treatment plants, the development of pump houses and stations, and electrical substations. (***Bylaw 2024-48 passed January 13, 2025***)

APPENDIX D

GROUNDWATER INFORMATION NETWORK RESULTS

Groundwater Information Network

Francais | English

GIN Basic Map Viewer

How to use this map



Zoom to a specific spatial extent

- Aquifers and Regions
  - Aquifers - NRCan
  - Aquifers - USGS
  - Hydrogeologic units - Newfoundland and Labrador
  - Hydrogeological Regions - Canada
- Water wells and Boreholes
  - Water Wells - Canada
  - Boreholes - Ontario
  - Water Wells - US NGWMN

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110191
Borehole Data Provider ID : 204110191
Information Source : ENVIRONMENT YUKON
Longitude : -135.035373
Latitude : 60.720208
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 103.60m
Elevation : 641.00m
CDEM Elevation : *661*m
CDSM Elevation : m
Water Use : Water exploration test hole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	2.10	**Gravel** (More Info) **Sand** (More Info)	silty SAND with some gravel	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
2.10	83.20	**Silt** (More Info) **Clay** (More Info)	SILT with clay	[34,61]% [34,57]%	[1E-9,2E-5]m/s [1E-11,4.7E-9]m/s
83.20	84.70	**Gravel** (More Info) **Clay** (More Info)	silty CLAY with some gravel	[24,44]% [34,57]%	[3E-4,3E-2]m/s [1E-11,4.7E-9]m/s
84.70	89.60	**Gravel** (More Info) **Sand** (More Info) **Silt** (More Info)	SAND and gravel, some silt	[24,44]% [26,53]% [34,61]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s [1E-9,2E-5]m/s
89.60	93.90	**Gravel** (More Info)	GRAVEL	[24,44]%	[3E-4,3E-2]m/s
93.90	107.00	**Gravel** (More Info) **Sand** (More Info)	coarse SAND and gravel	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
107.00	112.80	**Gravel** (More Info) **Sand** (More Info) **Silt** (More Info)	coarse SAND and gravel, tr. silt	[24,44]% [26,53]% [34,61]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s [1E-9,2E-5]m/s
112.80	115.80	**Gravel** (More Info) **Sand** (More Info)	coarse SAND and gravel, silty, gr cob.	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html?PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110191&

Timestamp: 2026-03-12T17:13:55.431-04:00

GIN Log

View legend

GIN borehole Identifier : ca.yk.waterWell.204110139 Report an error Report an error
Borehole Data Provider ID : 204110139
Information Source : ENVIRONMENT YUKON
Longitude : -135.048355
Latitude : 60.723687
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Elevation : 642.25m
CDEM Elevation : *640*m
CDSM Elevation : m
Water Use : Domestic - household needs

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
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PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110139&
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Timestamp: 2026-03-12T17:13:53.378-04:00

GIN Log

View legend

GIN borehole Identifier : ca.yk.waterWell.204110134 Report an error Report an error
Borehole Data Provider ID : 204110134
Information Source : ENVIRONMENT YUKON
Longitude : -135.048613
Latitude : 60.724441
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Elevation : 644.12m
CDEM Elevation : *640*m
CDSM Elevation : m
Water Use : Domestic - household needs

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110134&
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Timestamp: 2026-03-12T17:13:50.647-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110225
Borehole Data Provider ID : 204110225
Information Source : ENVIRONMENT YUKON
Longitude : -135.071392
Latitude : 60.730034
Online resource : ENVIRONMENT YUKON
Date of Drilling :2002-09-05
Length : 62.78m
Elevation : 635.00m
CDEM Elevation : *640*m
CDSM Elevation : m
Water Use : Water exploration test hole
Type : Air Rotary (conventional)

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	5.00	**Sand** (More Info)	SILTY SAND	[26,53]%	[2E-7,6E-3]m/s
5.00	8.50	**Sand** (More Info)	SILTY SAND (alluvial)	[26,53]%	[2E-7,6E-3]m/s
8.50	42.00	**Sand** (More Info) **Silt** (More Info)	(glaciolacustarine)SILT and Fine SAND	[26,53]% [34,61]%	[2E-7,6E-3]m/s [1E-9,2E-5]m/s
42.00	55.00	**Gravel** (More Info) **Sand** (More Info)	SILTY SAND and GRAVEL	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
55.00	62.78	**Bedrock** (More Info)	BEDROCK		

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html?PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110225&

Timestamp: 2026-03-12T17:13:47.824-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110203
Borehole Data Provider ID : 204110203
Information Source : ENVIRONMENT YUKON
Longitude : -135.057490
Latitude : 60.727491
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 9.60m
Elevation : 633.10m
CDEM Elevation : *640*m
CDSM Elevation : m
Water Use : Geotechnical borehole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	2.74	**Gravel** (More Info) **Sand** (More Info)	br. SAND and GRAVEL	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
2.74	9.60	**Gravel** (More Info) **Sand** (More Info)	grey fine to med. SAND tr. gravel near t	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html?PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110203&

Timestamp: 2026-03-12T17:13:45.359-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110222
Borehole Data Provider ID : 204110222
Information Source : ENVIRONMENT YUKON
Longitude : -135.064535
Latitude : 60.730046
Online resource : ENVIRONMENT YUKON
Date of Drilling :1995-08-01
Length : 51.21m
Elevation : 634.59m
CDEM Elevation : *640*m
CDSM Elevation : m
Water Level : 1.98m 1995-08-01
Water Use : Commercial - not fabrication or manufacturing
Status : New, in use for intended purpose
Type : Air Rotary (conventional)

Report an error Report an error

Well casing :

- From 0 to 50.29m, material: Steel

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	4.88	**Gravel** (More Info)	GRAVEL	[24,44]%	[3E-4,3E-2]m/s
4.88	47.55	**Silt** (More Info)	SILT	[34,61]%	[1E-9,2E-5]m/s
47.55	51.21	**Gravel** (More Info)	GRAVEL	[24,44]%	[3E-4,3E-2]m/s

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110222&
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Timestamp: 2026-03-12T17:13:42.737-04:00

APPENDIX E

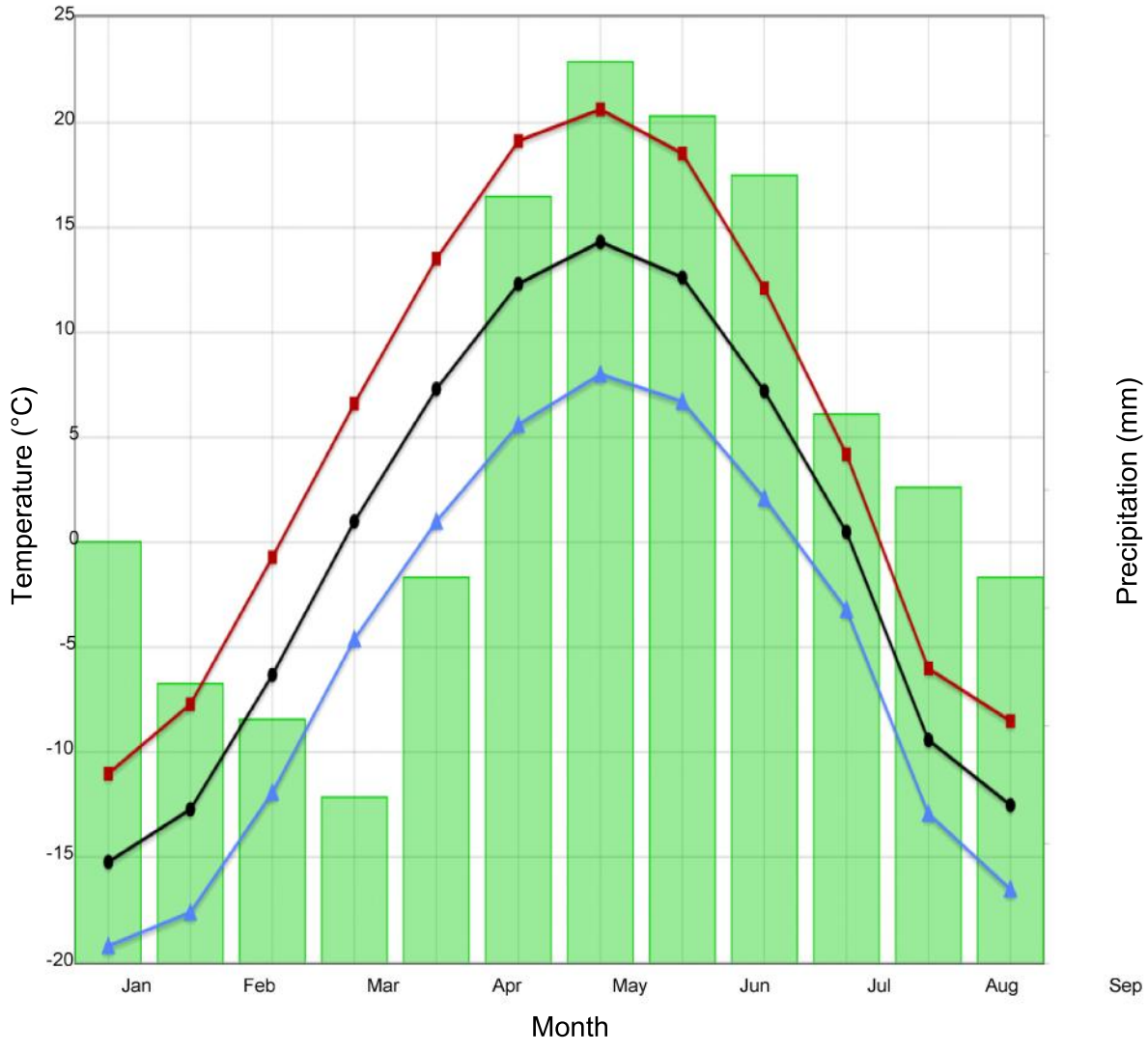
WHITEHORSE HISTORICAL CLIMATE DATA

Government of Canada | Gouvernement du Canada

Canadian Climate Normals 1981-2010 Station Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1981 to 2010 Canadian Climate Normals WHITEHORSE A



●	Daily Average Temperature (°C)
▲	Daily Minimum Temperature (°C)
■	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE A
YUKON TERRITORY

Latitude:	60°42'34.200" N
Longitude:	135°04'07.800" W
Elevation:	706.20 m
Climate ID:	2101300
WMO ID:	71964
TC ID:	YXY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Co
Daily Average (°C)	-15.2	-12.7	-6.3	1.0	7.3	12.3	14.3	12.6	7.2	0.5	-9.4	-12.5	-0.1	
Standard Deviation	6.5	4.7	3.5	2.3	1.5	1.3	0.9	1.4	1.6	1.8	4.8	4.7	3.3	
Daily Maximum (°C)	-11.0	-7.7	-0.7	6.6	13.5	19.1	20.6	18.5	12.1	4.2	-6.0	-8.5	5.1	

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Minimum (°C)	-19.2	-17.6	-11.9	-4.6	1.0	5.6	8.0	6.7	2.1	-3.2	-12.9	-16.5	-5.2	C
Extreme Maximum (°C)	9.0	11.7	11.7	21.8	34.1	**34.4**	32.8	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	1977/ 26	1968/ 27	1979/ 22	2002/ 30	1983/ 30	**1969/ 14**	1951/ 09	1999/ 05	1942/ 03	2003/ 03	1970/ 02	2004/ 23		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-2.8	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/ 31**	1968/ 02	1972/ 08	1986/ 10	2002/ 03	1971/ 03	1984/ 19	1948/ 25	1983/ 27	1982/ 28	2006/ 27	1942/ 19		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	0.3	0.0	0.0	1.2	14.3	32.4	38.1	35.5	29.0	8.8	1.0	0.4	160.9
Snowfall (cm)	25.4	18.3	14.8	7.2	2.0	0.0	0.0	0.3	4.7	18.6	27.0	23.5	141.8
Precipitation (mm)	17.8	11.8	10.3	7.0	16.3	32.4	38.1	35.8	33.3	23.2	20.1	16.3	262.3
Average Snow Depth (cm)	22	27	23	8	0	0	0	0	0	2	10	15	9
Median Snow Depth (cm)	22	27	23	8	0	0	0	0	0	0	10	15	9
Snow Depth at Month-end (cm)	26	25	18	1	0	0	0	0	0	5	13	18	9
Extreme Daily Rainfall (mm)	3.4	0.8	0.8	4.4	12.6	**44.9**	23.2	30.7	24.6	18.3	9.4	4.2	
Date (yyyy/dd)	1981/ 03	1984/ 04	1944/ 15	1983/ 30	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1983/ 04	1970/ 02	1949/ 03	1981/ 18	

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cc
Extreme Daily Snowfall (cm)	14.0	16.7	**27.2**	16.6	12.2	12.7	0.0	8.6	21.6	15.0	14.6	27.0		
Date (yyyy/dd)	1968/ 03	1982/ 09	**1967/ 08**	2006/ 14	1942/ 04	1972/ 01	1942/ 01	1974/ 22	1956/ 27	1999/ 23	1978/ 23	1980/ 25		
Extreme Daily Precipitation (mm)	9.5	10.4	10.4	15.8	12.6	**44.9**	23.2	30.7	25.2	23.6	11.4	18.7		
Date (yyyy/dd)	1994/ 17	1952/ 28	1962/ 07	2006/ 14	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1986/ 23	1970/ 02	1955/ 06	1980/ 25		
Extreme Snow Depth (cm)	86	94	**94**	66	38	0	0	3	20	21	52	69		
Date (yyyy/dd)	1972/ 30	1972/ 16	**1972/ 01**	1967/ 13	1972/ 01	1955/ 01	1955/ 01	1969/ 11	1956/ 28	1982/ 31	1978/ 25	1980/ 29		

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

► Frost-Free

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Station / Element Metadata

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a station with 30 years of record between 1981 and 2010 with no missing years would be a more reliable normal than a station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE A

Province	YT
Latitude (dd mm):	60 42 N
Country	CAN

Longitude (ddd mm):	135 04 W
Time Zone	PST
Latitude (decimal degrees):	60.71 N
Climate ID:	2101300
Longitude (decimal degrees):	135.07 W
WMO ID:	71964
Elevation (m):	706.2
TC ID:	YXY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1981	2007	25	3	8675	99.7
Standard Deviation	1981	2007	25	3	8675	99.7
Daily Maximum (°C)	1981	2007	25	3	8675	99.7
Daily Minimum (°C)	1981	2007	25	3	8675	99.7
Extreme Maximum (°C)	1942	2007			22837	99.9
Extreme Minimum (°C)	1942	2007			22836	99.9

▼ Precipitation

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Rainfall (mm)	1981	2007	25	3	8644	99.3
Snowfall (cm)	1981	2007	25	3	8644	99.3
Precipitation (mm)	1981	2007	25	3	8644	99.3
Average Snow Depth (cm)	1981	2007	24	3	8491	97.5
Median Snow Depth (cm)	1981	2007	24	3	8491	97.5
Snow Depth at Month-end (cm)	1981	2007	25	3	284	99.3
Extreme Daily Rainfall (mm)	1942	2007			22835	99.9
Extreme Daily Snowfall (cm)	1942	2007			22836	99.9
Extreme Daily Precipitation (mm)	1942	2007			22836	99.9
Extreme Snow Depth (cm)	1955	2007			18132	99.6

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

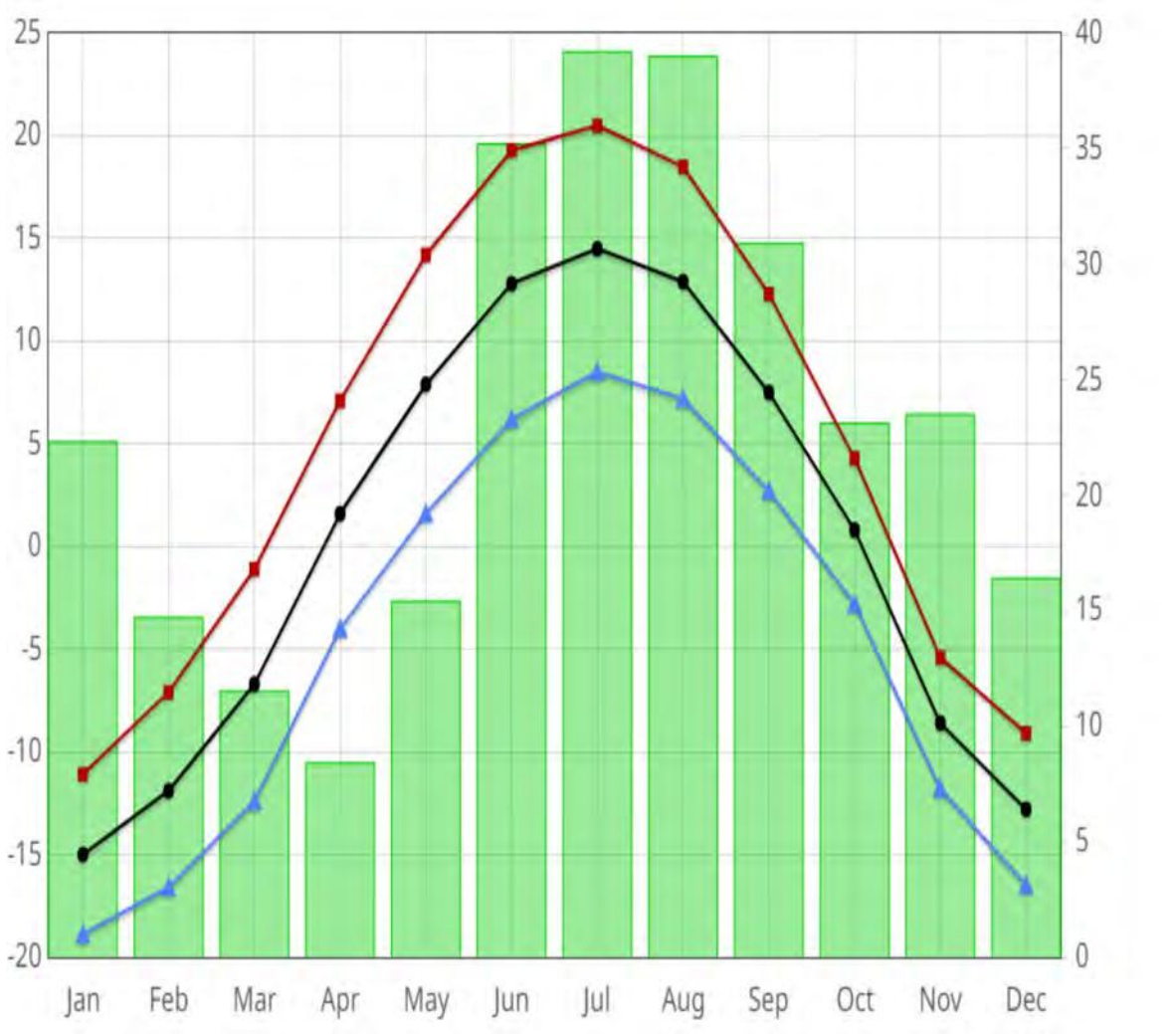
► Frost-Free

Date modified:
2019-02-20

Canadian Climate Normals 1991-2020 Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1991 to 2020 Canadian Climate Normals
WHITEHORSE



	Daily Maximum Temperature (°C)
	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-15.0	-11.9	-6.7	1.6	7.9	12.8	14.5	12.9	7.5	0.8	-8.6	-12.8	0.2	A
Standard Deviation	4.5	4.5	3.4	1.9	1.5	1.2	1.0	1.3	1.5	1.7	4.0	4.3	1.6	A
Daily Maximum (°C)	-11.1	-7.1	-1.1	7.1	14.2	19.3	20.5	18.5	12.3	4.3	-5.4	-9.1	5.2	A
Daily Minimum (°C)	-18.9	-16.6	-12.4	-4.0	1.6	6.2	8.5	7.2	2.7	-2.8	-11.8	-16.5	-4.7	A

Temperature Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Minimum Daily Mean (°C)	-48.1	-47.5	-31.7	-20.3	-6.4	3.3	5.6	0.8	-9.6	-24.2	-37.3	-44.5		
Date (yyyy/dd)	1947/31	1947/02	1972/08	1944/01	2002/03	1955/03	1945/06	1984/28	1983/27	1975/31	1948/27	1977/09		
Maximum Daily Mean (°C)	6.9	8.4	8.5	12.2	23.7	23.9	22.8	23.1	18.9	13.4	7.5	7.2		
Date (yyyy/dd)	2009/18	1968/27	2019/22	2003/25	1983/30	2004/23	1958/05	1994/09	2017/05	1958/01	1970/02	1999/23		
Extreme Maximum (°C)	10.0	11.7	16.8	21.8	34.1	**34.4**	33.2	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	2009/18	1968/27	2016/31	2002/30	1983/30	**1969/14**	2009/30	1999/05	1942/03	2003/03	1970/02	2004/23		
Minimum Daily Maximum (°C)	-43.9	-44.4	-24.8	-15.0	-1.1	6.7	7.2	2.7	-5.4	-20.0	-33.9	-42.7		
Date (yyyy/dd)	1947/31	1947/02	2007/01	1944/01	2002/02	1943/07	1950/27	1984/27	1983/26	1975/31	1948/27	1977/09		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-5.7	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/31**	1968/02	1972/08	1986/10	2002/03	2012/04	1984/19	1948/25	1983/27	1982/28	2006/27	1942/19		
Maximum Daily Minimum (°C)	3.7	5.0	4.6	5.6	13.3	17.2	17.2	17.1	14.3	10.2	4.4	5.2		
Date (yyyy/dd)	2009/18	1968/27	2019/18	1953/28	1983/30	1969/16	1999/14	1994/09	2013/07	2003/04	1956/28	1999/23		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Precipitation (mm)	22.3	14.7	11.5	8.4	15.4	35.2	39.2	39.0	30.9	23.1	23.5	16.4	279.6	C

Precipitation Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Extreme Daily Precipitation (mm)	16.2	17.9	10.4	15.8	12.6	**44.9**	30.9	30.7	25.2	23.6	21.3	18.7		
Date (yyyy/dd)	2015/21	2020/10	1962/07	2006/14	2000/26	**1985/27**	2014/04	1948/01	1986/23	1970/02	2020/02	1980/25		

▼ Days With ...

Days With ...

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Freezing Rain or Freezing Drizzle	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.29	0.28	0.21	0.99	A
Thunderstorms	0.0	0.11	0.0	0.0	0.33	1.9	1.9	0.46	0.11	0.07	0.0	0.03	4.9	A
Hail	0.0	0.0	0.0	0.0	0.07	0.04	0.14	0.04	0.0	0.0	0.0	0.0	0.29	A
Fog, Ice Fog, or Freezing Fog	2.2	0.64	0.07	0.11	0.04	0.29	0.29	0.50	1.1	1.1	1.7	1.3	9.3	A
Smoke or Haze	0.0	0.04	0.0	0.07	0.22	0.64	1.2	1.4	0.04	0.0	0.07	0.07	3.7	A

▼ Days with Maximum Temperature

Days with Maximum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
<= 0 °C	26.4	22.2	14.1	2.1	0.05	0.0	0.0	0.0	0.16	5.0	22.9	25.9	118.7	C
> 0 °C	4.6	6.1	16.9	27.9	31.0	30.0	31.0	31.0	29.8	26.0	7.2	5.1	246.5	C
> 10 °C	0.0	0.04	0.52	7.3	25.0	29.7	31.0	30.4	22.4	3.2	0.08	0.04	149.7	C
> 20 °C	0.0	0.0	0.0	0.19	2.9	11.8	16.6	10.0	0.76	0.0	0.0	0.0	42.2	C
> 30 °C	0.0	0.0	0.0	0.0	0.0	0.43	0.25	0.19	0.0	0.0	0.0	0.0	0.87	C
> 35 °C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C

▼ Days with Minimum Temperature

Days with Minimum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
> 0 °C	0.43	0.35	0.68	5.2	19.9	29.4	31.0	30.4	21.9	8.9	0.74	0.62	149.5	C
<= 2 °C	30.8	28.1	30.7	28.4	17.9	3.1	0.15	2.5	12.9	27.3	29.8	30.9	242.6	C
<= 0 °C	30.6	27.9	30.3	24.8	11.1	0.63	0.04	0.65	8.1	22.1	29.3	30.4	215.8	C
< -2 °C	29.6	27.1	28.0	18.4	4.8	0.0	0.0	0.04	3.5	15.2	27.4	29.7	183.7	C
< -10 °C	23.7	20.7	15.6	3.0	0.12	0.0	0.0	0.0	0.0	2.8	16.1	22.6	104.5	C
< -20 °C	13.6	10.2	6.2	0.56	0.0	0.0	0.0	0.0	0.0	0.08	4.3	10.2	45.2	C
< -30 °C	5.4	2.6	0.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.63	3.5	13.0	C

▼ Days with Precipitation

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 0.2 mm	12.7	9.2	7.2	5.1	7.3	11.1	13.0	12.0	12.2	10.7	13.0	11.3	124.7	C

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 5 mm	0.88	0.46	0.43	0.36	1.1	2.1	2.5	2.9	1.7	1.0	0.92	0.43	14.8	C
>= 10 mm	0.15	0.13	0.0	0.04	0.17	0.77	0.76	0.81	0.68	0.25	0.12	0.09	4.0	C
>= 25 mm	0.0	0.0	0.0	0.0	0.0	0.18	0.08	0.0	0.0	0.0	0.0	0.0	0.26	C

▼ Wind

Wind

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Speed (km/h)	11.3	11.9	11.8	11.4	11.4	10.1	9.8	10.1	11.8	12.2	12.3	12.5	11.4	A
Most Frequent Direction	S	S	S	S	S	S	S	S	S	S	S	S	S	A

Wind Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Direction of Extreme Speed	SE	SE	S	N	SE	SE	E	S	S	SE	SE	SE		
Extreme Speed (km/h)	72	68	64	60	64	56	63	52	72	63	68	**72**		
Date (yyyy/dd)	1962/09	1957/15	1953/14	1966/09	1965/06	1965/16	1959/30	1998/29	1967/17	1961/28	1962/18	**1954/17**		
Extreme Gust Speed (km/h)	100	106	93	89	85	90	91	84	101	97	**106**	97		
Date (yyyy/dd)	1965/17	1964/19	1965/10	1965/16	1965/02	1963/26	1982/07	1960/11	1967/18	1958/01	**1962/18**	1960/14		
Direction of Extreme Gust Speed	SE	SE	SW	N	SE	W	SE	SE	S	S	SE	SE		

▼ Degree Days

Degree Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Above 24 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	C
Above 18 °C	0	0	0	0	0	3.5	3.5	3.3	0	0	0	0	10.4	C
Above 15 °C	0	0	0	0	1.1	15.1	22.9	16.2	0.7	0	0	0	55.9	C
Above 10 °C	0	0	0	0.3	18.3	90.1	138.9	95.8	12.6	0.7	0	0	356.7	C
Above 5 °C	0.1	0.1	1	10.6	95.5	232.7	293.3	242.7	90.2	10.1	0.1	0.2	976.6	C
Above 0 °C	2.8	2.8	13.3	80.7	239.1	382.6	448.3	397.5	225.7	68.2	4.9	2.6	1868.5	C
Below 0 °C	467.7	343.6	211.4	32.2	0.9	0	0	0	1.1	45.5	266.2	406	1774.7	C
Below 5 °C	620	482	354.1	112.2	12.4	0	0	0.3	15.5	142.4	411.5	558.6	2,709	C
Below 10 °C	774.9	623.1	508.2	251.9	90.1	7.5	0.5	8.3	87.9	288.1	561.4	713.4	3915.3	C
Below 15 °C	929.9	764.3	663.2	401.6	228	82.4	39.5	83.7	226.1	442.4	711.4	868.4	5440.8	C
Below 18 °C	1022.9	849.1	756.2	491.6	319.9	160.9	113.1	163.8	315.4	535.4	801.4	961.4	6490.9	C

▼ Quintiles

Quintiles

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 1 (Lower Bound)	9.1	0	0	0	2	8.8	14.2	9.9	5.9	5.9	5.8	3.2		
Quintile 1 (Upper Bound)	11.9	6	2.2	1.4	5.3	19.8	26.5	22.5	18.1	14.3	12.3	8.3		

Quintiles														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 2 (Upper Bound)	20.1	8.7	6.8	3.7	11.6	30	31.8	31.9	20.9	18.6	18.6	14.1		
Quintile 3 (Upper Bound)	22.9	14	15	7.4	16.8	38.4	40.4	42.9	28	26.3	25.2	17.5		
Quintile 4 (Upper Bound)	26.5	23.7	21.8	16.3	22.9	49.1	54.9	54.1	40.2	30.8	31.7	23.1		
Quintile 5 (Upper Bound)	44.7	40.6	29.1	29.7	43.6	82.2	65.6	82.1	80.3	42.2	55.8	65.4		

▼ Humidity

Humidity														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Vapour Pressure (kPa)	0.2	0.2	0.3	0.4	0.5	0.8	1	0.9	0.7	0.5	0.3	0.2	0.5	A

▼ Pressure

Pressure														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Station Pressure (kPa)	92.6	92.8	92.7	92.7	93	93	93.2	93.1	92.8	92.5	92.4	92.4	92.8	A
Average Sea Level Pressure (kPa)	101.4	101.5	101.3	101.2	101.4	101.3	101.5	101.4	101.2	101.1	101.1	101.1	101.3	A

▼ Visibility (hours with)

Visibility (hours with)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
< 1 km	26.4	2.3	0.6	0.3	0.1	0.6	0.5	1.2	2.1	2.8	6	5.8	48.7	A
1 to 9 km	98.3	58.9	53.1	16.5	8.8	10.5	12.3	19	20	62.4	119.2	85.4	564.2	A
> 9 km	619	617.2	689.3	702.9	734.9	708.7	730.3	723.3	697.3	678.2	594.1	652.2	8147.2	A

▼ Frost-Free

1991 to 2020 Canadian Climate Normals Data

Frost-Free		
	Date/Days	Code
Average Date of Last Spring Frost	Jun 03	D
Average Date of First Fall Frost	Aug 28	D
Average Length of Frost-Free Period	85 Days	D

1991 to 2020 Canadian Climate Normals Data

Frost-Free

	10%	25%	33%	50%	66%	75%	90%
Probability of first temperature in fall <= 0°C, on or before (Date)	Jun 22	Jun 15	Jun 10	Jun 04	Jun 02	May 28	May 22
Probability of last temperature in spring <= 0°C, on or after (Date)	Aug 11	Aug 22	Aug 25	Aug 30	Sep 03	Sep 04	Sep 14
Probability of frost-free period equal to or less than indicated period (Days)	61	68	76	85	91	96	103

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Element Analytics

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a composite station with 30 years of record between 1991 and 2020 with no missing years would be a more reliable normal than a composite station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1991	2020	29	3	9994	97.4
Standard Deviation	1991	2020	29	3	9994	97.4
Daily Maximum (°C)	1991	2020	29	3	9995	97.4
Daily Minimum (°C)	1991	2020	29	3	10040	97.9

Temperature Extremes (Long-Term)

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Maximum Daily Mean (°C)	1942	2020			27922	99.5
Minimum Daily Mean (°C)	1942	2020			27922	99.5
Extreme Maximum (°C)	1942	2020			27929	99.5
Minimum Daily Maximum (°C)	1942	2020			27929	99.5
Maximum Daily Minimum (°C)	1942	2020			27943	99.6
Extreme Minimum (°C)	1942	2020			27943	99.6

▼ Precipitation

Precipitation						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Precipitation (mm)	1991	2020	27	4	8889	88

Precipitation Extremes (Long-Term)						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Extreme Daily Precipitation (mm)	1942	2020			27814	99.6

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

▶ Frost-Free

▼ Composite Metadata / Threads

The Climate Normals, Averages, and Extremes are based on Canadian climate composite stations with at least 15 years of data between 1991 and 2020. Composite stations are comprised of one or more stations operated by the Meteorological Service of Canada (MSC) or its partners, where data from individual stations are joined together to create a 30-year data series for a given location. All stations (and associated metadata) used as part of the composite are listed below, alongside the threads used to calculate each Normals/Extremes element.

WHITEHORSE

YUKON TERRITORY

Related Data
Calculation Information

Normals Data

Element Analytics

Download Data

☑ Composite Station Metadata (CSV)

☐ Composite Station Threads (CSV)

Note:

Both files (CSV) can be downloaded

together as a zipped folder

Download

Composite Station Metadata

All stations used in the composite for all Normals and Extremes elements are listed. Station metadata includes station name, station identifiers, coordinates, and elevation.

Composite Station Name: WHITEHORSE

Station Name	Climate ID	WMO ID	TC ID	Latitude	Longitude	Elevation (m)
WHITEHORSE A	2101303		YXY	60°42'34.000" N	135°04'02.000" W	706.2
WHITEHORSE A	2101300		YXY	60°42'34.200" N	135°04'07.800" W	706.2
WHITEHORSE AUTO	2101310		VXY	60°43'59.000" N	135°05'52.000" W	707

Composite Station Threads

Station composites are threaded from the beginning of the Normals period starting in 1991 to the end of 2020, where the predecessor site's data is used until the end of its period of record and is then joined to the current operating site to extend the time series. Threads are generated by climate element for hourly and daily data, and may vary due to differences in station history, instrumentation, meteorological data availability, data quality, or proximity. Normals and Extremes elements are grouped based on the climate element used in its calculation. For long-term extremes (LTE), the same Normals period threads are extended back in time to the earliest date of data available from the first station used in the data series. These use the LTE Start Date instead of the Start Date, that applies to normals period elements.

For additional station metadata information, refer to the above section "Composite Station Metadata".

Composite Station Name: WHITEHORSE

▼ Temperature

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Daily Average (°C) • Standard Deviation • Maximum Daily Mean (°C) (LTE) • Minimum Daily Mean (°C) (LTE)	DAILY MEAN TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Maximum (°C) • Extreme Maximum (°C) (LTE) • Minimum Daily Maximum (°C) (LTE)	DAILY MAXIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Minimum (°C) • Maximum Daily Minimum (°C) (LTE) • Extreme Minimum (°C) (LTE)	DAILY MINIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▼ Precipitation

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Precipitation (mm) • Extreme Daily Precipitation (mm) (LTE)	DAILY TOTAL PRECIPITATION	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Quintiles

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

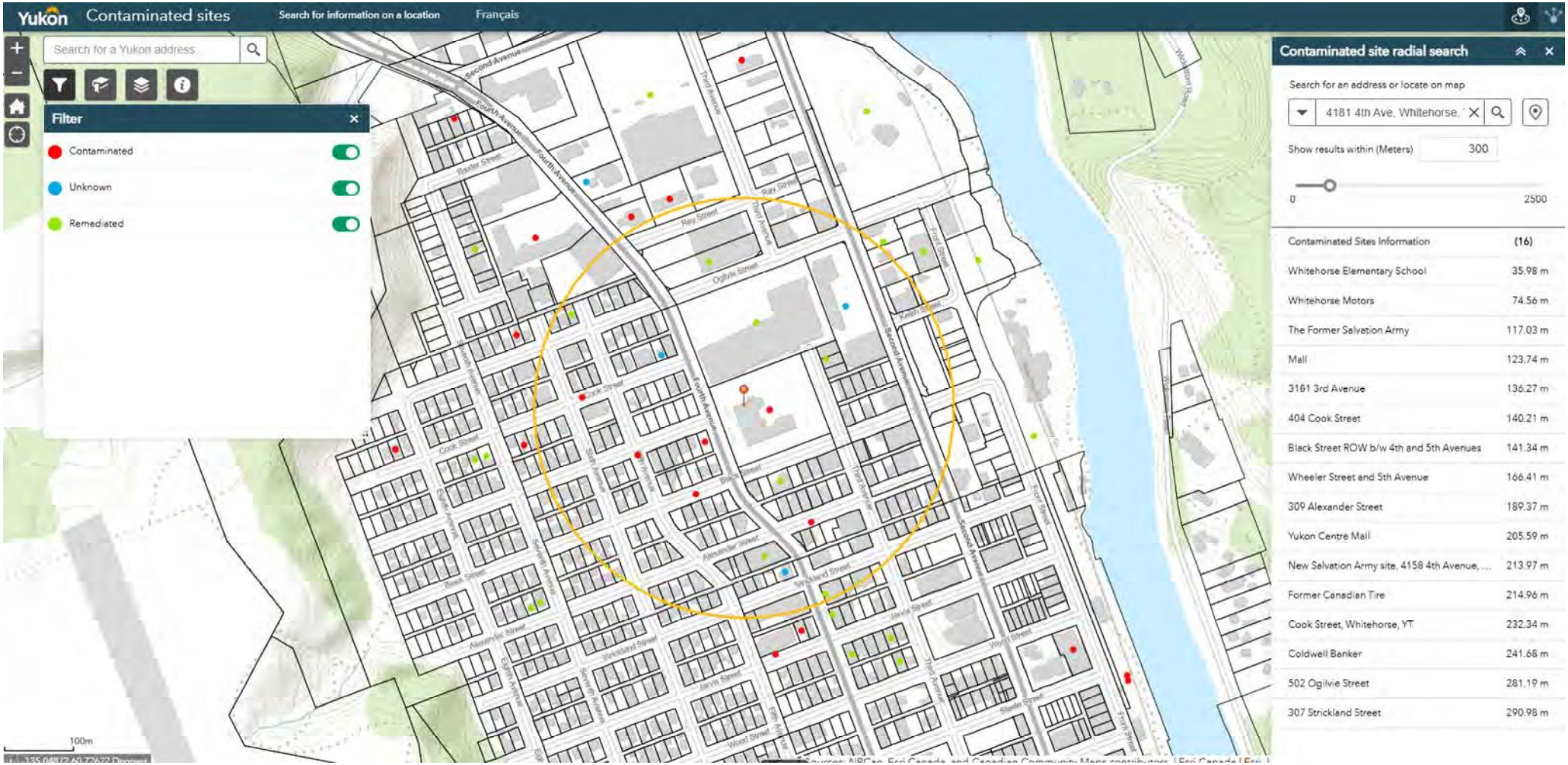
▶ Frost-Free

Date modified:

2023-09-18

APPENDIX F

YUKON GOVERNMENT ENVIRONMENTAL PROTECTION BRANCH SPILLS AND CONTAMINATED SITES SEARCH


Yukon
Contaminated sites
Search for information on a location
Français
Search for a Yukon address
Filter
Contaminated
Unknown
Remediated
Contaminated site radial search
Search for an address or locate on map
4181 4th Ave, Whitehorse, Y
Show results within (Meters)
300
0
2500
Contaminated Sites Information (16)
Whitehorse Elementary School 35.98 m
Whitehorse Motors 74.56 m
The Former Salvation Army 117.03 m
Mall 123.74 m
3161 3rd Avenue 136.27 m
404 Cook Street 140.21 m
Black Street ROW b/w 4th and 5th Avenues 141.34 m
Wheeler Street and 5th Avenue 166.41 m
309 Alexander Street 189.37 m
Yukon Centre Mall 205.59 m
New Salvation Army site, 4158 4th Avenue, ... 213.97 m
Former Canadian Tire 214.96 m
Cook Street, Whitehorse, YT 232.34 m
Coldwell Banker 241.68 m
502 Ogilvie Street 281.19 m
307 Strickland Street 290.98 m
100m

APPENDIX G

ENVIRONMENT AND CLIMATE CHANGE CANADA SPILLS AND CONTAMINATED SITES REGISTRY SEARCH RESULTS

Environment and Climate Change Canada | Environnement et Changement climatique Canada

9th floor Place Vincent Massey Annex
351 St. Joseph Boulevard
Gatineau, Quebec
K1A 0H3

Your File Votre référence
EA2026-0162336
Our File Notre référence
E-2025-01276

April 7, 2026

Mr. Keegan Kim
Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT
Y1A 0H7

Dear Mr. Kim,

This letter is in response to your request under the *Access to Information Act* for:

> **"OWNER: Yukon Government**
>
> **PROPERTY: Parcel A Lot 5, Group 5 (804), Downtown Whitehorse, Yukon • 41582 CLSR YT, 20076 LTO YT *See the map showing site location.**
>
> **To the purpose of a Phase I Environmental Site Assessment on the Property, we request information pertaining to the environmental quality of the site from historical to present. Records of spills, environmental assessments, cleanups, above ground or underground tanks, and anything that could affect the environmental quality of the soil or water at the site."**

After a thorough search, no records were found concerning this request.

Please be advised that you are entitled to file a complaint with the Office of the Information Commissioner concerning the processing of your request within sixty days of the receipt of this notice. In the event you decide to avail yourself of this right, your notice of complaint should be addressed to:

Information Commissioner of Canada
30 Victoria Street
Gatineau, Québec K1A 1H3

If you have any questions regarding this request, please do not hesitate to contact Alix Malisani by email at alix.malisani@ec.gc.ca.

Yours sincerely,

Original signed by:

Susan Drysdale
Director, Access to Information and Privacy

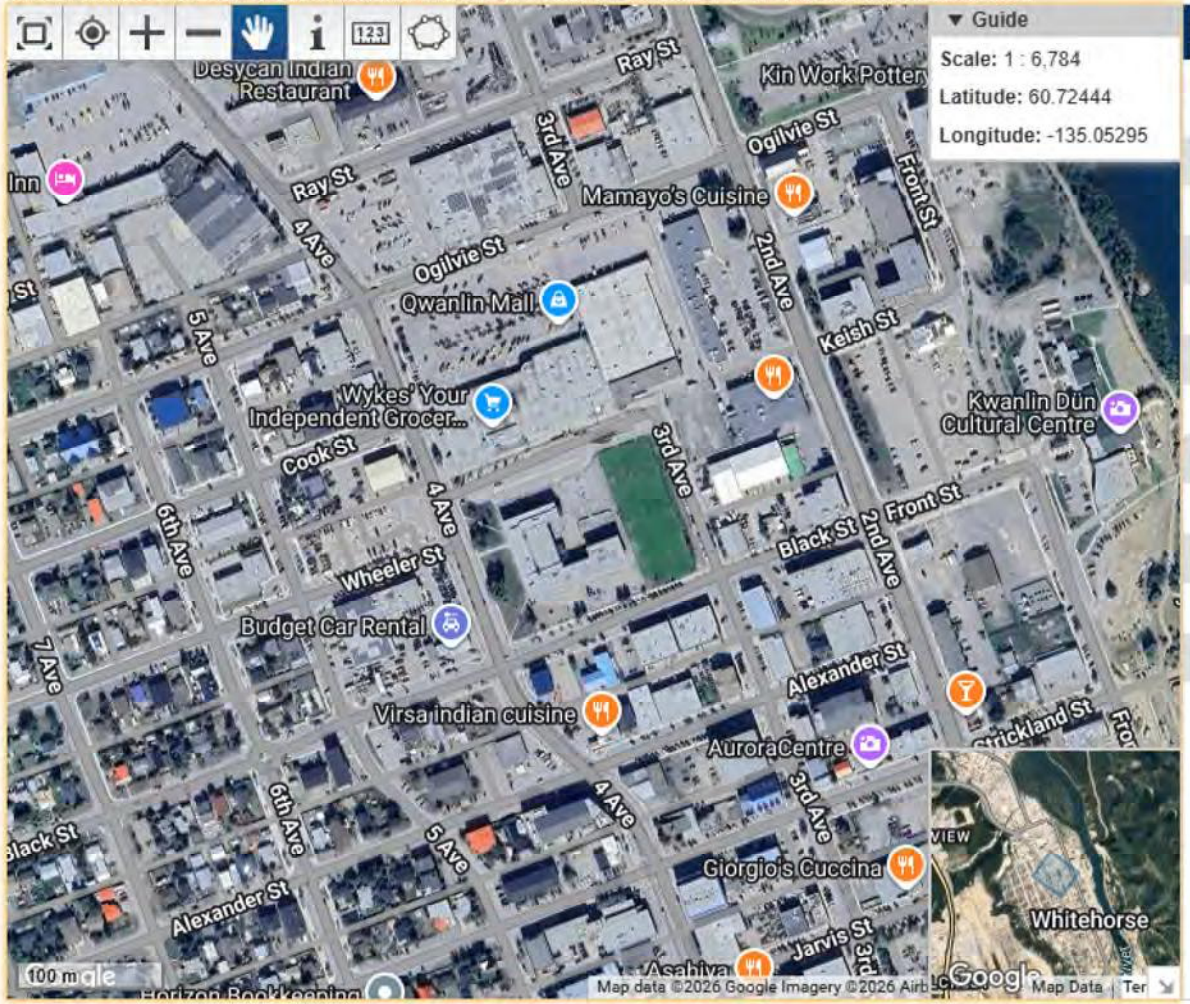
Canada

APPENDIX H

FEDERAL CONTAMINATED SITES INVENTORY RESULTS

DFRP/FCSI - Map Navigator

Area: Whitehorse **Content:** 0 Federal Property, 0 Federal Building, 0 Federal Contaminated Site



Layers | Search | Information

Control layers and labels visibility with the checkboxes. Control the base map with the select list. Actions will automatically update the map.

	Visibility	Labels
Federal Properties	☐	☐
Federal Buildings	☐	☐
Active Federal Contaminated Sites	☑ [1]	☑
Suspected Federal Contaminated Sites	☑ [1]	☑
Closed Federal Contaminated Sites	☑ [1]	☑
Economic Region	☐	☐
Census Divisions	☐	☐
Census Subdivisions	☐	☐
Metropolitan Areas	☐	☐
Federal Electoral Districts	☐	☐
Treaty Areas	☐	☐

Base map: Google Hybrid [2]

[1] Suspected Active Closed

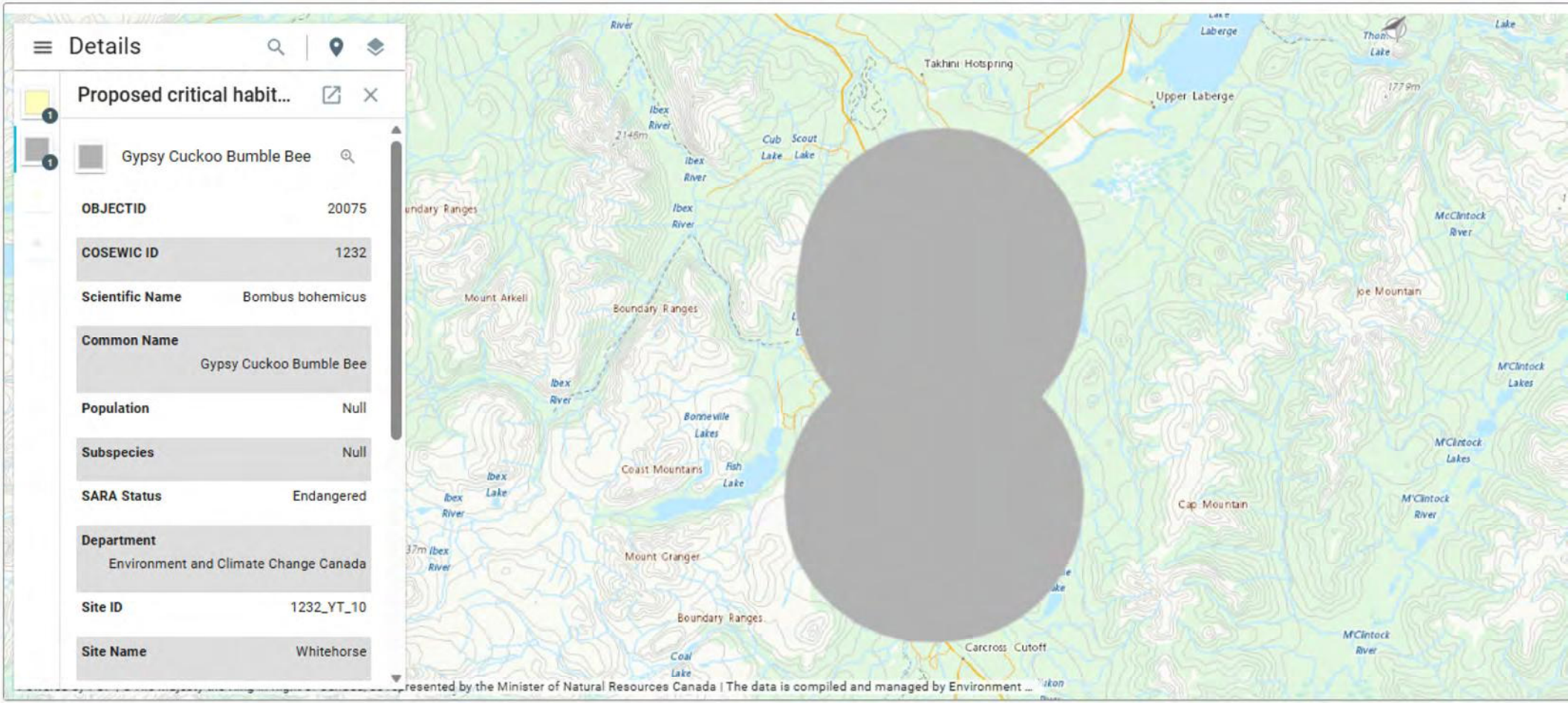
[2] Google base maps are only available when the map scale is smaller than 1:60,000.

APPENDIX I

CRITICAL HABITAT FOR SPECIES AT RISK NATIONAL DATASET

Open Maps

- Critical Habitat for Species at Risk National Dataset - Canada
- Web analytics data



APPENDIX J

TETRA TECH'S LETTER OF RELIANCE POLICY

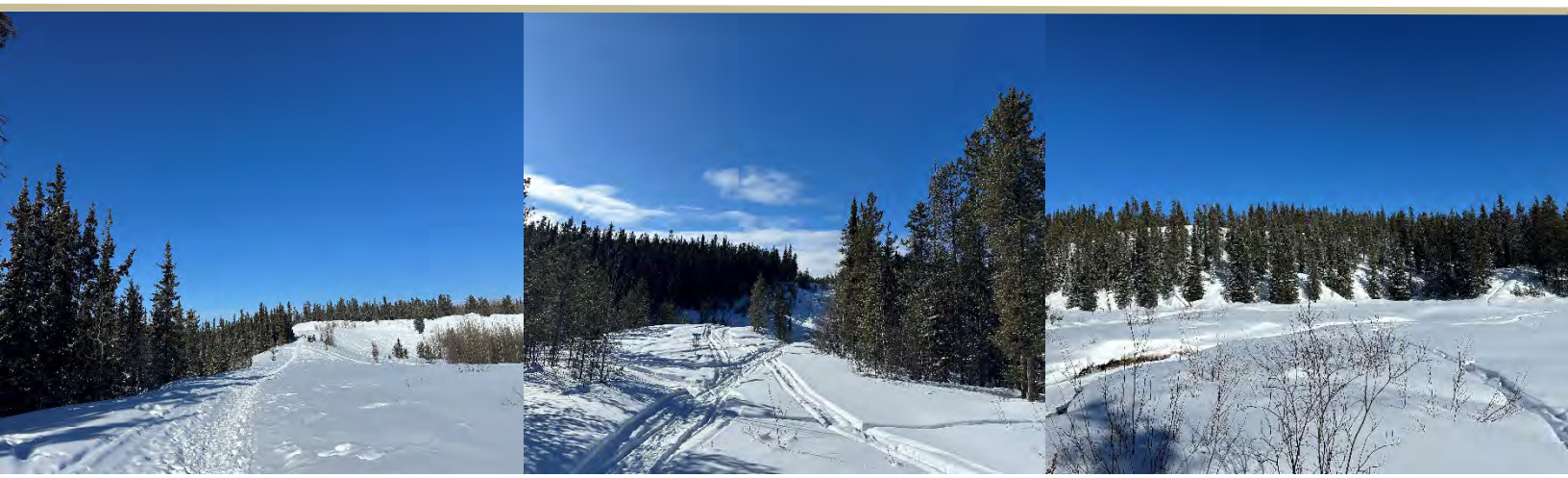
A Letter of Reliance is a document provided by Tetra Tech to confirm and extend reliance on an Environmental Site Assessment (ESA) report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided below.

- Written permission from the original client must be provided to Tetra Tech before a Letter of Reliance will be prepared. A Letter of Reliance will only be provided to a specific Third Party (e.g. no "open" Letter of Reliance will be issued) and will not be issued to a Third Party more than twice removed (e.g., seller is original client and Letter of Reliance is provided to the lender of the buyer). The format and content of the letter will be determined exclusively at the discretion of Tetra Tech.
- A Letter of Reliance will only be provided for ESA reports issued in the last year (365 days). After this period a new evaluation must be undertaken, and a new or updated report produced at the client's or third party's expense.
- A minimum $500 fee will be charged for each Letter of Reliance. This amount may be increased based on the potential liability and complexity associated with the site and investigation. This fee along with any outstanding charges must be paid in full prior to issuing the Letter of Reliance.
- The Letter of Reliance will be subject to Tetra Tech's standard terms and conditions and limitation of liability (for damages) will be limited to the same dollar amount outlined in the executed Service Agreement.

Non-standard terms and conditions for the Letter of Reliance should be presented to the Tetra Tech Project Manager for consideration prior to the commencement of the ESA. An example Letter of Reliance can be provided at the client's request.

Notwithstanding any of the conditions above, Tetra Tech may, at its sole discretion and without providing justification, refuse to provide a Letter of Reliance.

Phase I Environmental Site Assessment
Lot 435 (Remainder), Group 804
Whitehorse, Yukon



PRESENTED TO

Kobayashi + Zedda Architects

MARCH 30, 2026
ISSUED FOR REVIEW
704-ENG.WARC04470-03

This "Issued for Review" document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an "Issued for Use" document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the "Issued for Review" document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

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

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for Lot 435, across from Kopper King, Whitehorse, Yukon (herein referred to as the "Property"). The legal description of the Property is Lot 435 (REM), Group 804 Whitehorse, 52105 CLSR YT, 26830 LTO YT.

Phase I ESA Findings

Based on the findings of this Phase I ESA, the Property has never been fully developed and remains primarily forested, with only disc golf nets, utility poles, and signage present. No structures, paved surfaces, or evidence of environmental impairment were observed. The Property includes natural forested terrain and a wetland area associated with McIntyre Creek, and is accessed via an unpaved road from University Drive.

No above-ground storage tanks (ASTs) or underground storage tanks (USTs) were observed during the site visit. A review of surrounding land uses within 200 m identified a mix of forested areas, residential neighbourhoods, institutional facilities, transportation corridors, and commercial sites. The only off-Property feature presenting a low potential environmental issue is the Fas Gas Plus station located approximately 150 m south; however, no historical contamination was documented, and the site is separated from the Property by the Alaska/Klondike Highway.

Historical aerial imagery indicates the Property has remained largely undeveloped since at least 1965, with only minor changes related to access roads and recreational use. No archival materials or historical reports specific to the Property were identified. Land titles review confirms that the Property is surveyed but untitled and remains under Yukon Government administration and control.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no areas of potential environmental concern (APECs) were identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows:

- Fas Gas Plus Gas Station (Off-Property)

Tetra Tech does not recommend further investigation for the Property.

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Kobayashi + Zedda Architects and their agents. Tetra Tech Canada Inc. (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 Kobayashi + Zedda Architects, or for any Project other than the proposed development at the subject Property. 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 Appendix A or Contractual Terms and Conditions executed by both parties.

LETTER OF RELIANCE POLICY

A Letter of Reliance is a document provided by Tetra Tech Canada Inc. to confirm and extend reliance on an Environmental Site Assessment report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided in Appendix I.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for Lot 435, across from Kopper King, Whitehorse, Yukon (herein referred to as the "Property"). The legal description of the Property is Lot 435 (REM), Group 804 Whitehorse, 52105 CLSR YT, 26830 LTO YT.

Tetra Tech understands the Phase I ESA is being undertaken to assess three proposed sites for a new École Whitehorse Elementary School (EWES). This Phase I ESA was completed in general accordance with the methods outlined in the Canadian Standards Association (CSA) *Z768-01 Phase I Environmental Site Assessment,* published by the CSA (reaffirmed 2022).

The objective of a Phase I ESA is to assess a site for potential and existing environmental contamination liabilities, such as the potential presence of contaminants, hazardous materials, or waste materials of a deleterious nature. The present and past activities on the Property and at the surrounding sites were reviewed to establish the potential for significant adverse impacts (if any) on the environmental status of the Property. This review was limited to the activities presented in this report. Much of this review involved the interpretation of acquired historical documents and discussions with individuals with purported knowledge of the subject. Such sources of information are not exhaustive or reliable to any level of certainty. Moreover, while Tetra Tech is skilled at preparing the technical aspects of Phase I ESAs, we do not consider ourselves to be experts in assessing the reliability of witnesses or the accuracy, availability, completeness, or reliability of historical documents and information.

In our report, we refer to potential sources of contamination as 'issues'. Any issues that in our opinion have a moderate or high potential to result in soil and/or groundwater contamination are termed areas of potential environmental concern (APECs). The regulated chemicals associated with contamination sources in each APEC are termed potential contaminants of concern (PCOCs). If any APECs are identified in the Phase I ESA, a sampling investigation will be recommended to confirm the presence or absence of any PCOCs.

Tetra Tech received written authorization from Jack Kobyashi, Principal at KZA, to proceed with the Phase I ESA on March 3, 2026.

1.1 Scope of Services

The scope of services for the Phase I ESA included the following tasks:

- Review available previous environmental reports completed for the Property and/or for sites surrounding the Property (if any).
- Review historical records of site occupancy listed in archive and land title records and previous land uses as shown in aerial photographs.
- Review spill records, contaminated site records, and documentation of any environmental concerns maintained in Government of Yukon (YG) Environmental Programs Branch (EPB), Protective Services Branch (PSB), or Environment and Climate Change Canada (ECCC) records or obtained from a query of the Government of Canada Federal Contaminated Sites Inventory (FCSI).
- Conduct a visual review of the Property and adjacent sites to identify evidence and/or sources of possible contamination or environmental impairment, and to establish the presence and specific locations of critical features such as surface staining, waste dumped at the site and waste handling procedures, suspect imported fill materials, odours, condition of vegetation, storage areas for solvents or other chemicals, evidence of underground or above-ground storage tanks (USTs/ASTs), and other site observations.

- Interview persons with purported knowledge of past and present occupancy/activities on the Property and/or surrounding area.
- Review available published geological and hydrogeological information for the Property area.
- Comment on noise quality and nearby noise pollution sources.
- Prepare a Phase I ESA report to assess the likelihood of site contamination that may justify further investigation, and recommend any further work in this regard, if required.

1.2 Qualifications of Assessors

Keegan Kim, M.Sc. G.I.T., conducted the historical research, interviews, site reconnaissance and was the primary author of this report. Keegan has four years of experience in the environmental field in Canada.

Darren Thomas, B.A.Sc., P.Eng., conducted the peer review of the report. Darren is an Environmental Engineer with the Environment & Water Practice. He has 14 years of experience in the fields of environmental site assessment and remediation.

Paul Gardner, M.A.Sc., P.Eng., performed the Senior Review of this report. Paul is a Senior Contaminated Sites Specialist with the Environment & Water Practice. Paul has over 20 years of progressive consulting experience in the fields of environmental site assessment and remediation.

2.0 PROJECT DESCRIPTION

2.1 Location, Current Legal Description and Ownership

The location of the Property is shown on Figure 1 and the approximate co-ordinates obtained from Google Earth are shown in Table 2-1 below.

Table 2-1: Approximate Global Position of the Property

Lot	Latitude	Longitude
Lot 435 (REM)	60°44'34.52"N	135°06'28.09"W

The civic address, legal description, plan number, approximate size, and ownership of the Property are included in Table 2-2 below. A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. The results of this request are discussed further in Section 4.3, and the search results are included in Appendix B.

Table 2-2: Location, Size and Ownership

Civic Address	Legal Description	Approximate Size (m^2)	Owner
N/A	Lot 435 (REM), Group 804 Whitehorse, 52105 CLSR YT, 26830 LTO YT	249934.52	Administered by Yukon Government's Land Development Branch

2.2 Zoning

The Property is zoned FP (Future Planning), per the City of Whitehorse (CoW) Zoning Bylaw 2012-20. The purpose of the FP land designation is to provide a zone to protect land with no determined use in a generally undeveloped and natural state until such time as planning has occurred to determine appropriate zoning.

The principal land uses for FP zoning includes:

- Community gardens and greenhouses
- Natural interpretation facilities
- Personal use fuel wood cutting

A copy of the CoW zoning map showing the designated uses for the Property and the surrounding sites is attached as Appendix C.

2.3 Potable Water Supply and Drinking Water Wells

Potable water is not currently supplied to the Property.

Tetra Tech conducted a search of the Canadian Groundwater Information Network (GIN) using their online mapping tool on March 12, 2026, to identify nearby water wells. According to the online mapping tool, there are two recorded water wells located within a 1.5 km search radius of the Property with none of the identified wells located on the Property. The locations relative to the Properties and the reported use of these wells is summarized in Table 2-3.

Table 2-3: Summary of Nearby Groundwater Wells from GIN

Groundwater Well	Distance and Direction from Property	Purpose
Well 204110194	60 m North	Water exploration test hole
Well 204110195	770 m Northeast	Water exploration test hole

A copy of the GIN search results can be found in Appendix D.

2.4 Interviews

Interviews could not be completed within the timeframe required for the Project.

2.5 Current Property Facilities and Observations

Tetra Tech's representative, Keegan Kim, completed a site visit at the Property on March 17, 2026. The site visit involved visual observations of the Property surface for any stains or suspect materials on site, a visual review of accessible areas for the on-site outside areas, and an assessment of the current condition of vegetated areas on the Property. Snow cover during the site visit limited observations of surface conditions and access to some areas. Photographs taken during the site visit are presented in the Photos Section. Photos 1 through 14 show the Property, and photos 15 through 22 show the surrounding land use.

2.5.1 Property Layout

The Property is accessible from an access road that can be reached via University Drive and covers an area of 249,934 m². This access road is used to reach the McIntyre Creek Pumphouse (also referred to as the McIntyre Creek Booster Station), and some nearby residents use the road to park their vehicles when visiting the surrounding trails. The McIntyre Creek Pumphouse is not included within the Property boundary; however, the Solstice Disc Golf Park is located within the boundary. The Property layout is shown on Figure 2.

Aside from the disc golf nets associated with the Solstice Disc Golf Park, as well as a few signs and utility poles, the Property is predominantly forested. Much of the Property consists of forested land, and the northern portion includes part of the wetland area of McIntyre Creek. There are no paved surfaces on the Property and the Property is primarily used for recreation by nearby residents who visit the disc golf park or walk the trails.

2.5.2 Property Structures

Other than the disc golf nets in the disc golf park, no other structures were visible during the site visit.

2.5.3 Above-Ground or Underground Storage Tanks

Tetra Tech viewed the Property for any indications of ASTs and/or USTs, which could include suspect vent or filler pipes, fuel lines, stained areas, and evidence of stressed vegetation. No USTs or ASTs were identified during the site visit.

2.5.4 Chemical and Waste Storage and Disposal

No chemical or waste storage or disposal activities were observed on the Property.

2.5.5 Spills and Stained Areas

The Property was snow-covered during the site visit, limiting observations for spills or staining.

2.5.6 Fill Material

No suspected fill materials were observed on the Property during the site visit. However, snow cover limited the ability to fully assess surface soils. Based on the review of historical aerial photographs (see Section 4.1), there is no indication that fill was imported to the Property, which has remained predominantly forested for much of its history until its current configuration.

2.5.7 Property Drainage

Due to snow cover at the time of the site visit, detailed observations of drainage patterns were limited; however, no indications of significant surface pooling were observed. Drainage is presumed to flow toward the nearby McIntyre Creek.

2.6 Surrounding Site Review

Publicly accessible or visible portions of adjacent sites within 200 m of the Property were viewed to assess their potential for environmental concerns that could impact the environmental integrity of the Property. Table 2-4 presents a summary of the observations of the surrounding sites and their orientation relative to the Property based on the inferred groundwater flow direction (north to northeast; see Section 3.3 and Figure 3). Figure 3 shows the location of the businesses relative to the Property.

Table 2-4: Surrounding Land Uses

Direction	Notes, Current Tenants & Environmental Observations within 200 m radius of Property
North (inferred down-gradient)	**Mostly undeveloped, zoned Public Utilities, and Public Services** ▪ To the north of the Property lies forested areas and developed sites including: – Yukon University and its associated buildings (Senior housing building being closest to the Property) – McIntyre Creek and its wetland area – McIntyre Creek Booster Station **(Fuel AST)** – Forested area
East (inferred cross to down-gradient)	**Developed, zoned Greenbelt, Parks and Recreation, and Comprehensive Residential Single Family** ▪ To the east of the Property lies developed sites and businesses including: – Residential units (Takhini North Neighborhood) – Whitehorse Correctional Centre – Partially forested area
South (inferred up-gradient)	**Developed, zoned Highway Commercial, Residential Mobile Home Park, and Parks and Recreation** ▪ To the south of the Property lies developed sites and businesses including: – McCaws Drill Blast Site – Alaska/Klondike Highway – Manitoulin Transport – Fas Gas Plus (no ASTs, presumed to have USTs) – Kopper King – Kopper King Trailer Park
West (inferred cross to up-gradient)	**Mostly undeveloped, zoned First Nation and Future Planning** ▪ To the west of the Property lies a mostly forested area and McIntyre Creek. At the western boundary of the Property, there is a trail/access road leading to the Solstice Disc Golf Park.

3.0 NATURAL SETTING

3.1 Geological Information

The Bond, Morison, & McKenna terrain mapping (Whitehorse, 2005), shows the surficial geology for the Property area as being comprised of fluvial deposits which are sediments transported and deposited by streams and rivers. Fluvial sediments consist of gravel and/or sand and/or silt (and rarely clay) and is commonly moderately to well-sorted and displays stratification, although massive, non-sorted fluvial deposits do occur. According to the Yukon Bedrock Geology Map, the bedrock in this area is composed of massive to thick bedded limestone, granodiorite, and quartz diorite.

3.2 Climate Records

Historical climate information for this region is based on data from Environment Canada collected at the Whitehorse Airport Weather Station.

Climate information was provided for the period between 1981 and 2010 (for snowfall and rainfall records) then 1981 and 2020 (latest available, for precipitation records). According to the information, the rainfall, precipitation, and snowfall records were as follows:

- Annual Rainfall: 160.9 mm
- Highest Monthly Rainfall: 38.1 mm (July)
- Annual Precipitation: 262.3 mm
- Highest Monthly Precipitation: 38.1 mm (July)
- Annual Snowfall: 141.8 cm
- Highest Monthly Snowfall: 27.0 cm (November)

A copy of the historical climate information is provided in Appendix E.

3.3 Hydrogeology

Based on Tetra Tech's experience in the regional area, the depth to groundwater is unknown but expected to be deeper than 3.0 m below ground surface (bgs) and to flow in a generally north to northeast direction towards the McIntyre Creek. However, due to the complex history and nature of the underlying materials, actual groundwater flow on the Property and surrounding sites may vary.

3.4 Surface Waterbodies

The northern portion of the Property consists of McIntyre Creek and its surrounding wetland area. In the other portions of the Property, there are no waterbodies that pass through or are located immediately adjacent to the Property.

4.0 HISTORICAL RECORDS

Tetra Tech conducted a historical review of the Property and surrounding sites using available aerial photographs, Google Earth satellite images, and Yukon Archive documents. This section summarizes the historical review findings for the Property and the surrounding sites.

4.1 Aerial Photos and Satellite Imagery

Aerial images from 1965, 1976, 1985, 1992, 2001, 2014, 2019, and 2024 are included as Figure 4 (a to h). Table 4-1 presents a discussion of the development of and changes to the Property and surrounding area based on these images.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1965	**Property**: The Property is mostly forested and undeveloped. The present-day access road to the McIntyre pump house has been constructed and can be seen crossing the eastern and northern portions of the Property. The southeastern corner appears cleared of vegetation. **Surrounding Sites**: The Klondike Highway is visible to the south, and the Kopper King area shows some building development. Residential development is also occurring east of the Property.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1976	**Property**: The Property remains largely unchanged. **Surrounding Sites:** Additional residential units (trailer park) are visible south of the Property in the Kopper King area. More buildings have been developed in that area. The present-day Fas Gas Plus building is also visible and appears to be operating as a gas station. Residential units are also visible southeast of the Property. A building appears to have been developed to the east at the present-day Whitehorse Correctional Centre site. Small structures can be observed near the present-day pump house area north of the Property.
1985	**Property**: The Property remains largely unchanged; some reforestation is visible in the previously cleared southeastern corner. **Surrounding Sites**: The Kopper King area and nearby residential areas remain largely unchanged. The Whitehorse Correctional Centre area has expanded with additional buildings and structures. University Drive is being developed to the north and east. Softball fields are being developed west of the Property.
1992	**Property**: The southeastern area appears cleared again after previous reforestation. An access road has been cleared along the western boundary, connecting to the pump house area. **Surrounding Sites**: Surrounding sites remain largely unchanged.
2001	**Property**: An additional access road is visible cutting across the centre of the Property in the present-day disc golf park area, likely associated with development of the disc golf park. **Surrounding Sites**: University Drive to the east shows some modifications. The Manitoulin Transport yard to the south has expanded.
2014	**Property**: The Property remains largely unchanged. **Surrounding Sites**: A senior housing complex for Yukon University has been developed north of the Property, along with expanded university parking areas. Additional residential development is visible to the east.
2019	**Property**: The Property appears largely unchanged. **Surrounding Sites**: Some buildings have been removed within the Whitehorse Correctional Centre lot.
2024	**Property**: The Property appears unchanged and is in its current configuration. **Surrounding Sites**: Surrounding sites also appear largely unchanged and remain in their current configuration.

4.2 Yukon Archives

On March 18, 2026, Tetra Tech visited the online Yukon Archives database and the physical database inventory (provided to Tetra Tech by the Yukon Archives in August 2020) to review archival records pertaining to the Property and the surrounding area. This search produced no materials directly pertaining to the Property.

4.3 Land Titles Office

A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. Response correspondence between Tetra Tech, the Land Titles Branch, and the Land Development Branch is included in Appendix B.

The Property is described as Lot 435 Remainder, Plan 26830. According to the Land Titles Branch, the Property is surveyed but not titled. For ownership details, the Branch referred Tetra Tech to the Yukon Government Land Management Branch.

According to Justine Scheck, Special Projects Advisor, untitled parcels are not considered “owned” by the Yukon Government until a title is issued. Most YG properties with existing assets are titled and held by the Commissioner of Yukon. Untitled land—whether surveyed or unsurveyed—is under Yukon Government administration and control under the *Yukon Lands Act* or the *Territorial Lands (Yukon) Act*, which differs from formal ownership. Public/Yukon land includes surveyed and unsurveyed untitled parcels such as Lot 435 Remainder.

The Yukon Government Land Development Branch currently administers the Property, but it does not hold ownership, as untitled land has no formal title holder.

4.4 Historical Reports

The following sections summarize available historical reports relating to the Property and the surrounding area outside of the regulatory records databases (summarized in Section 5.0).

4.4.1 Reports Relating to the Property

Tetra Tech conducted a search of the publicly available records pertaining to the Property. There were no reports or records available.

4.4.2 Reports Relating to the Surrounding Area

Tetra Tech conducted a search of the publicly available records pertaining to the immediate surrounding area. There were no reports or records available.

5.0 REGULATORY RECORDS

The regulatory records review is described in the following subsections.

5.1 Government of Yukon

5.1.1 Environmental Programs Branch, Spills and Contaminated Sites Registry

On March 5, 2026, Tetra Tech completed a search of the YG EPB Spills and Contaminated Sites Registry for all documented spills and registered sites within a 200 m radius of the Property. The Spills and Contaminated Sites Registry documents milestones in the identification and cleanup process of a site. The site registry contains information on sites that have been investigated and remediated in the Yukon since 2001. The YG EPB search results are attached in Appendix F.

A lack of information on a particular site does not indicate an absence of contamination, but only an absence of YG EPB documentation. The search identified one remediated site. A summary of this site is provided in Table 5-1 below.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
McIntyre Creek Pumphouse	40 m North (Down-gradient)	Remediated	In August 2010, an excavation removed and relocated approximately 20 m^3 of PHC contaminated material to a land treatment facility. Confirmatory sample results indicated that the soil remaining on site was below applicable standards. During an excavation in March 2016, an oily sheen was observed on top of the groundwater near the underground water pipes. The cause of the contamination is thought to be a historical spill. Groundwater sampling completed in 2020 and 2021 showed PHC concentrations in groundwater were below applicable standards. The site is considered remediated.	This site is considered hydraulically down-gradient from most portions of the Property. Confirmatory soil and groundwater sampling were below applicable standards, and the site status is classified as remediated. Given its remediated status and down-gradient position, this site is inferred to pose little to no environmental concern to the Property.

5.1.2 Protective Services Yukon

Since 1998, YG PSB has maintained a registry of storage tanks on commercial properties. The registry includes records for permits that were issued for AST and UST installations, removals, and maintenance work on tanks with volumes over 4,000 L.

Upon review of the registry, Tetra Tech did not identify any permits for tank installations or removals; however, this does not preclude the possibility of undeclared or unregistered storage tanks.

5.2 Government of Canada

5.2.1 Environment and Climate Change Canada Spills and Contaminated Sites Registry

Tetra Tech requested a search of the Environment and Climate Change Canada (ECCC) Spills and Registry and contaminated sites records on March 10, 2026, to determine if there have been any documented spills or records of contaminated land on the Property, historical to present. Tetra Tech had not received the results from ECCC at the time of this report. Once the results have been received, if the findings change the outcome of this report, an addendum to this report will be issued. A copy of the ECCC search request can be found in Appendix G.

5.2.2 Federal Contaminated Sites Inventory

The Government of Canada maintains the FCSI database that contains environmental information pertaining to federally-regulated contaminated or potentially contaminated sites. The inventory also includes non-federally regulated contaminated sites for which the Government of Canada has accepted some or all financial responsibility. The FCSI is not a registry solely of contaminated sites. Some sites in the registry are characterized to have soil and

groundwater exceeding the applicable standards, but most are simply being investigated and require little, if any, cleanup or they have already been cleaned up to applicable standards. A lack of information on a particular site does not indicate an absence of contamination, but only an absence of documentation in the FCSI.

Tetra Tech conducted an area search using this online database for registered sites within 200 m of the Property on March 10, 2026, and no contaminated site results were returned in the search. A copy of the FCSI site registry search results is attached in Appendix H.

6.0 DISCUSSION

The following section discusses the findings of the Phase I ESA. Activities with the potential to be sources of contamination are termed “issues.” Any issues that present a moderate or high potential for causing soil and/or groundwater contamination on the Property are termed APECs.

During the Phase I ESA, no APECs were identified and one low potential environmental issue was identified for the Property. The environmental issue along with the associated rationale is outlined in the following Table 6-1.

Table 6-1: Low Potential Environmental Issue Rationale

Low Potential Environmental Issue Contaminant Sources	Rationale
Fas Gas Plus Gas Station – Off-Property	▪ The Fas Gas Plus gas station located across the Alaska/Klondike Highway has potentially been operating since 1976 based on aerial photograph review. It is inferred to be hydraulically up-gradient of the Property and is assumed to contain USTs. No records of historical contamination were identified in government databases, and the station is located approximately 150 m south of the Property. ▪ Based on its distance from the Property, the separation provided by the Alaska/Klondike Highway, and the absence of any documented historical contamination, Tetra Tech assesses the Fas Gas Plus gas station as low risk.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this Phase I ESA, the Property has never been fully developed and remains primarily forested, with only disc golf nets, utility poles, and signage present. No structures, paved surfaces, or evidence of environmental impairment were observed. The Property includes natural forested terrain and a wetland area associated with McIntyre Creek, and is accessed via an unpaved road from University Drive.

No ASTs or USTs were observed during the site visit. A review of surrounding land uses within 200 m identified a mix of forested areas, residential neighbourhoods, institutional facilities, transportation corridors, and commercial sites. The only off-Property feature presenting a low potential environmental issue is the Fas Gas Plus station located approximately 150 m south; however, no historical contamination was documented, and the site is separated from the Property by the Alaska/Klondike Highway.

Historical aerial imagery indicates the Property has remained largely undeveloped since at least 1965, with only minor changes related to access roads and recreational use. No archival materials or historical reports specific to the Property were identified. Land titles review confirms that the Property is surveyed but untitled and remains under Yukon Government administration and control.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no APECs were identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows:

- Fas Gas Plus Gas Station (Off-Property)

Tetra Tech does not recommend further investigation for the Property.

8.0 CLOSURE

Conclusions and recommendations presented herein are based on a visual site inspection, discussion with personnel and historical information that was reviewed at the time of this investigation. This report has been prepared based on the scope of work approved by, and for the use of, Kobayashi + Zedda Architects, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

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

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

704-ENG.WARC04470-03
704-ENG.WARC04470-03
704-ENG.WARC04470-03

Prepared by:
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ISSUED FOR REVIEW

704-ENG.WARC04470-03
704-ENG.WARC04470-03
704-ENG.WARC04470-03

Peer Reviewed by:
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ISSUED FOR REVIEW

704-ENG.WARC04470-03
704-ENG.WARC04470-03
704-ENG.WARC04470-03

Reviewed by:
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Senior Contaminated Sites Specialist
Environment & Water Practice
Direct Line: 604.722.7944
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/ces

REFERENCES

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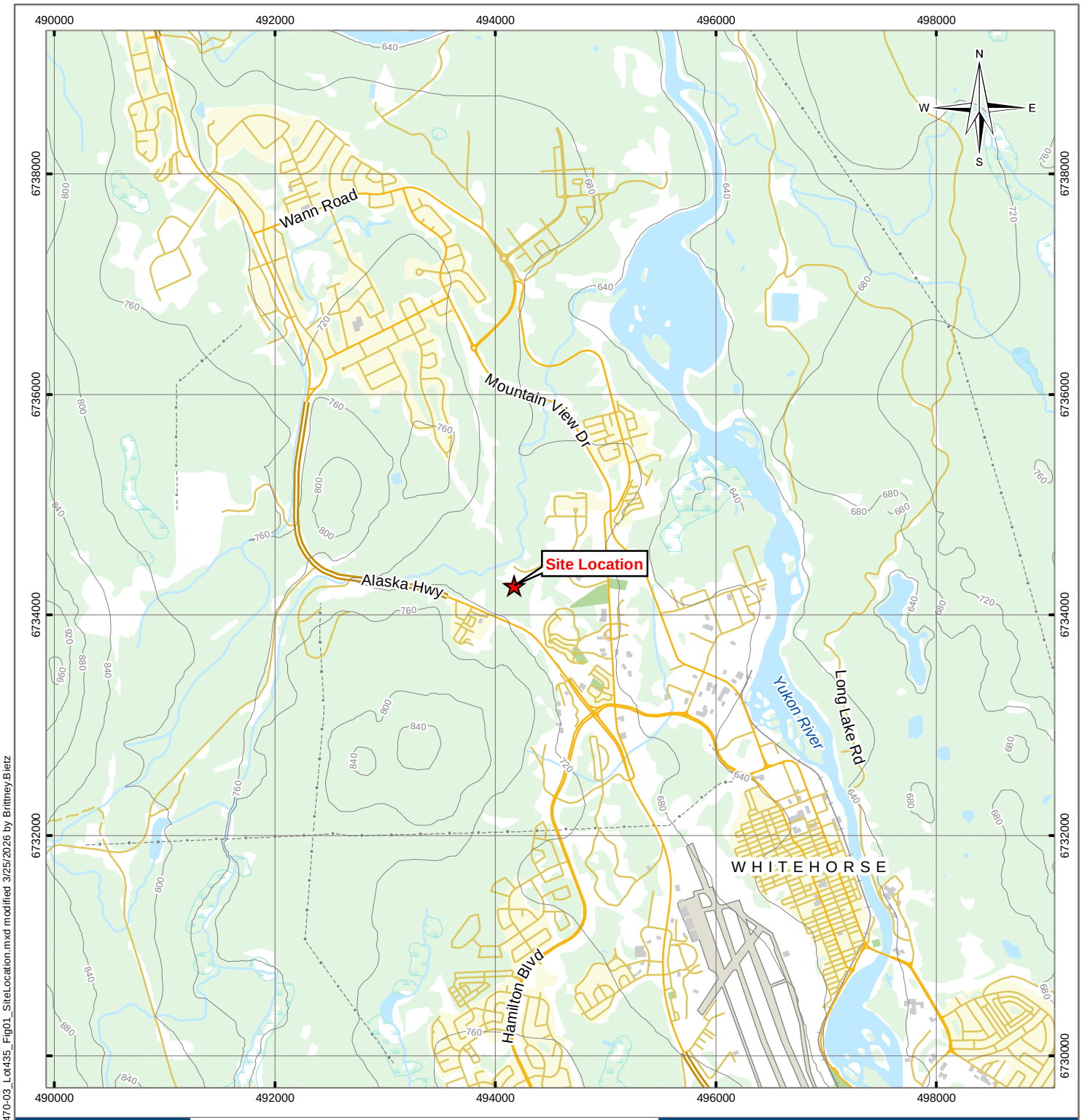
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FIGURES

Figure 1 Site Location
Figure 2 Property Plan
Figure 3 Surrounding Land Use Plan
Figure 4a-4i Historical Aerial Imagery



LEGEND

- Site Location
- Highway
- Main Road
- Local Road
- Resource/Recreational Road
- Railway
- Power Line
- Runway
- Building
- Park
- Residential Area
- Contour (40 m)
- Watercourse
- Waterbody
- Wetland
- Wooded Area

NOTES
Base data source: CanVec 1:50,000.

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Site Location

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:50,000
1 0.5 0 1
Kilometres

FILE NO.
WARC04470-03_Lot435_Fig01_SiteLocation.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	SL	KK	0

DATE
March 25, 2026

PROJECT NO.
ENG.WARC04470-03

TETRA TECH

Figure 1

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LEGEND

- Solstice Disc Golf Park
- Site Boundary
- Parcel Boundary

NOTES
Base data source:
Parcel data: Government of Yukon
Imagery: ESRI, Vantor (2024)

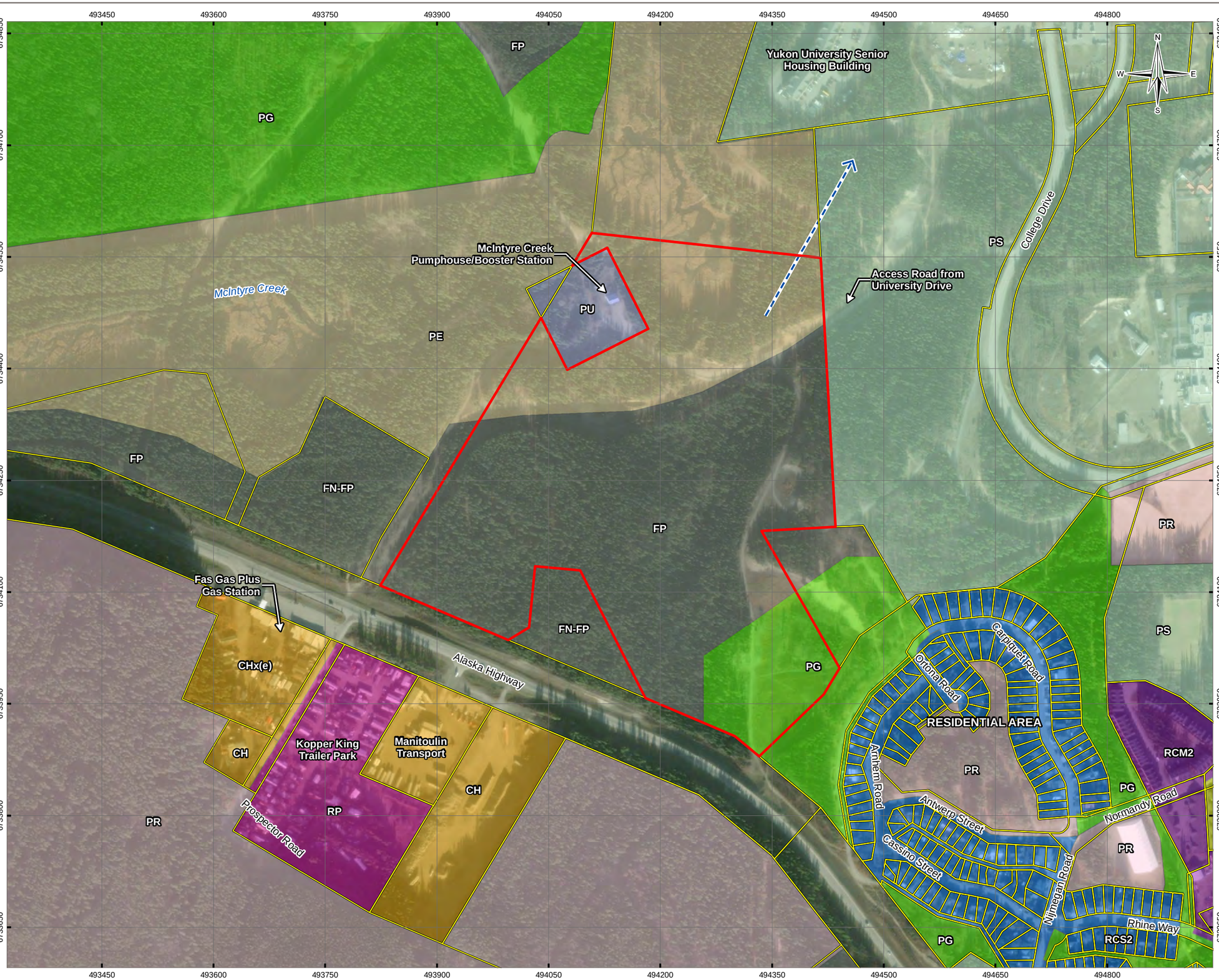
STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Property Plan

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:3,000 (50 25 0 50 Metres)					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig02_PropertyPlan.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** SL	**APVD** KK	**REV** 0	**Figure 2**
DATE March 26, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Site Boundary
- Parcel Boundary
- Inferred Groundwater Flow Direction

Zoning Description

- Comprehensive Residential Multiple Family 2 (RCM2)
- Comprehensive Residential Single Family 2 (RCS2)
- Environmental Protection (PE)
- Future Planning (FN-FP)
- Greenbelt (PG)
- Highway Commercial (CH)
- Parks and Recreation (PR)
- Public Services (PS)
- Public Utilities (PU)
- Residential Mobile Home Park (RP)
- Residential Multiple Housing (RM)
- Residential Single Detached (RS)

NOTES
Base data source:
Parcel data: Government of Yukon
Zoning data: City of Whitehorse
Imagery: ESRI, Vantor (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Surrounding Land Use Plan

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:5,000
100 50 0 100
Metres

TETRA TECH

FILE NO.
WARC04470-03_Lot435_Fig03_SLUP.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	SL	KK	0

DATE	PROJECT NO.
March 26, 2026	ENG.WARC04470-03

Figure 3

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LEGEND

- Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1965)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
1965

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4a**
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Site Boundary

NOTES
Base imagery source: Department of Natural Resources Canada (1976)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
1976

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	Figure 4b
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1985)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
1985

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4c**
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1992)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
1992

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4d**
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (2001)

STATUS
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PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
2001

PROJECTION UTM Zone 8	**DATUM** NAD83				**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4e**
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Site Boundary

NOTES
Base imagery source: GeoYukon (2014)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
2014

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	**Figure 4f**
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Site Boundary

NOTES
Base imagery source: GeoYukon (2019)

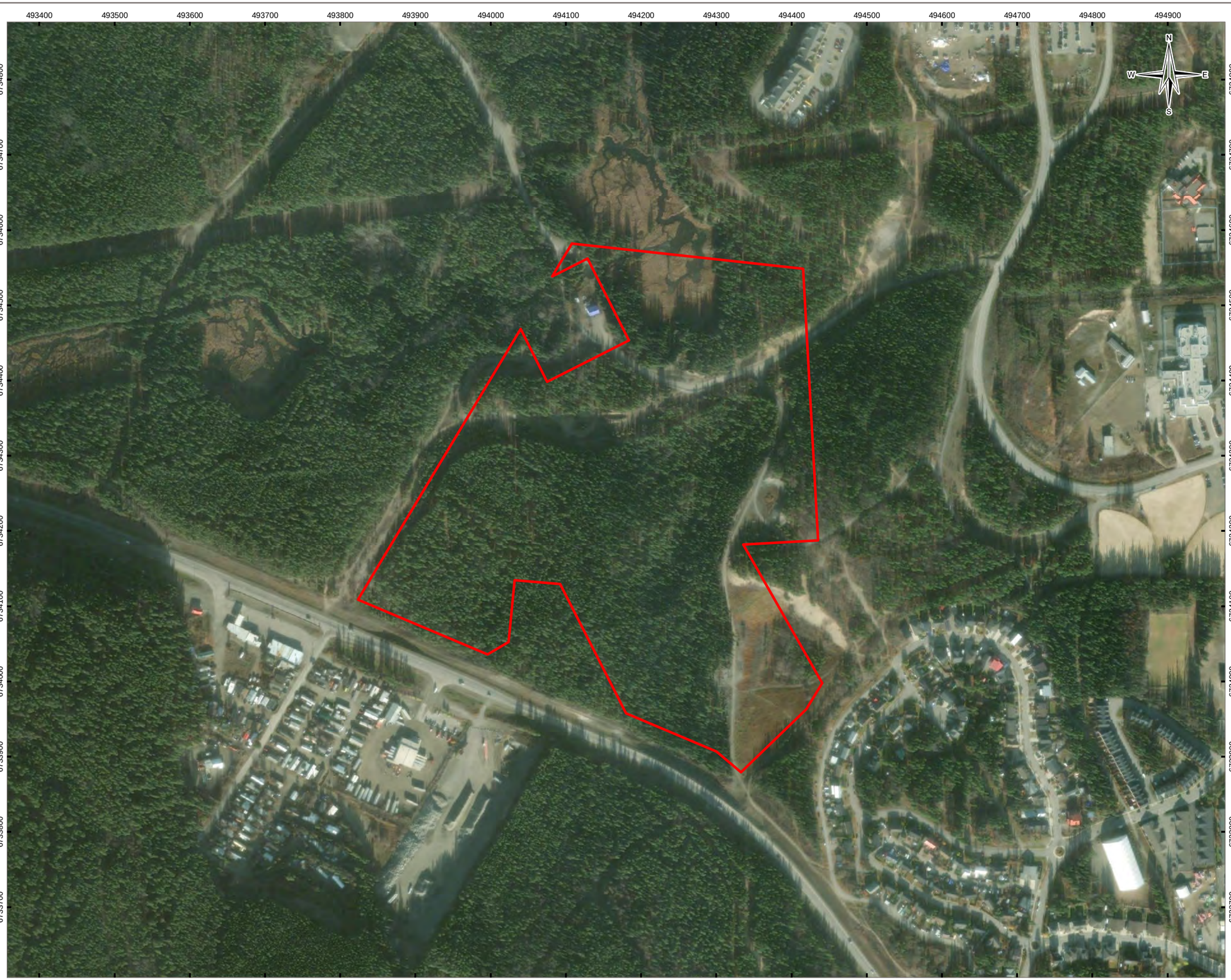
STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
2019

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres					TETRA TECH
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OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0	Figure 4g
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

Site Boundary

NOTES
Base imagery source: ESRI, Vantor (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
LOT 435
WHITEHORSE, YUKON

Historical Aerial Imagery
2024

PROJECTION UTM Zone 8		**DATUM** NAD83		**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres				TETRA TECH
FILE NO. WARC04470-03_Lot435_Fig04_Historical.mxd				
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03			**Figure 4h**

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PHOTOGRAPHS

Site Photographs 1 – 22

Photo 1	View of the access road on the Property leading to the McIntyre Creek Pumphouse.
Photo 2	View of the trail for the Solstice Disc Golf Park, located in the northern section of the Property.
Photo 3	View of the entrance to the Solstice Disc Golf Park, located in the northern section of the Property.
Photo 4	View of the cleared area for the Solstice Disc Golf Park, located in the northern section of the Property.
Photo 5	View of a typical disc golf net found throughout the Solstice Disc Golf Park, taken from the western boundary of the Property looking east.
Photo 6	View of the western boundary of the Property, looking south.
Photo 7	View of the Property's southwestern boundary.
Photo 8	View of the Property's southern boundary near Kopper King.
Photo 9	View of the Property's southern boundary, near Manitoulin Transport.
Photo 10	View of the Property from its southeastern corner, looking north.
Photo 11	View of the Property's eastern boundary, looking south.
Photo 12	View of the Property's northeastern portion, looking north.
Photo 13	View of the Property's forested portion near its eastern boundary.
Photo 14	View of the Property's walking trail in the northern portion, with gates to block vehicle traffic.
Photo 15	View of surrounding sites, McIntyre Creek Pumphouse.
Photo 16	View of surrounding sites, including the McIntyre Creek Pumphouse, its fuel AST, and the garbage/recycle bins used by trail users.
Photo 17	View of surrounding sites, McIntyre Creek north of the Property.
Photo 18	View of surrounding sites, McIntyre Creek wetland area north of the Property.
Photo 19	View of surrounding sites, Yukon University senior housing building.
Photo 20	View of surrounding sites, Takhini North Neighborhood.
Photo 21	View of surrounding sites, Manitoulin Transport across Alaska/Klondike Highway.
Photo 22	View of surrounding sites, Kopper King, and Fas Gas Plus across Alaska/Klondike Highway.

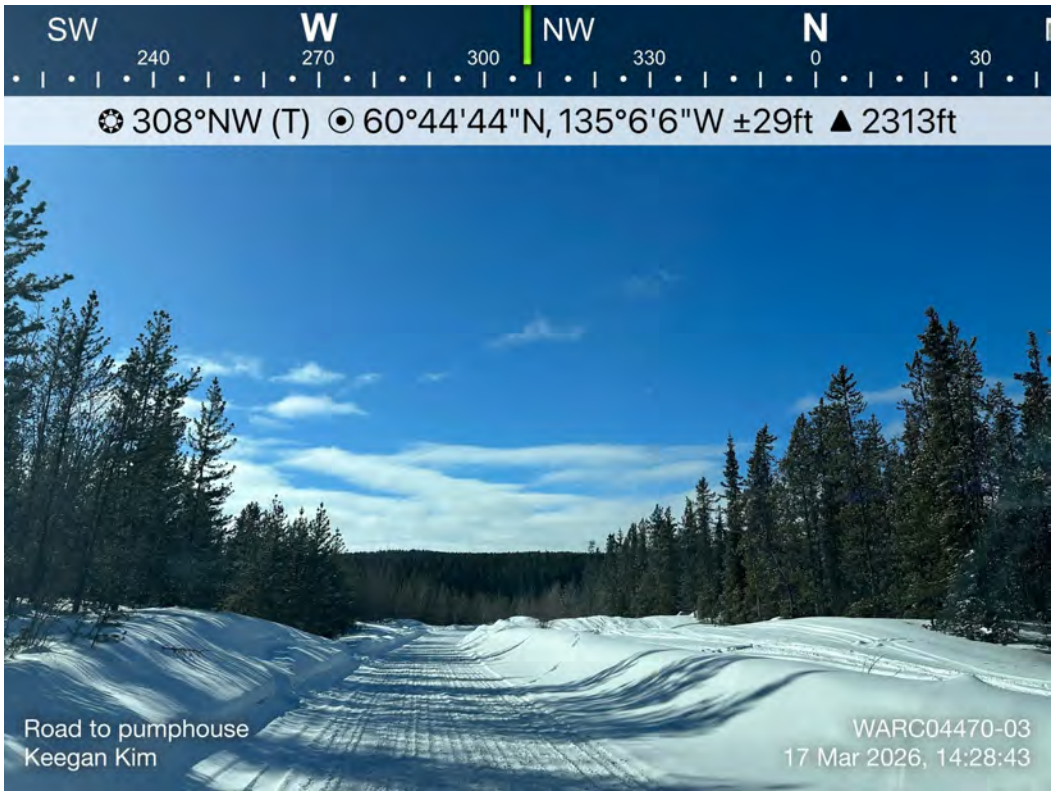


Photo 1: View of the access road on the Property leading to the McIntyre Creek Pumphouse.



Photo 2: View of the trail for the Solstice Disc Golf Park, located in the northern section of the Property.



Photo 3: View of the entrance to the Solstice Disc Golf Park, located in the northern section of the Property.

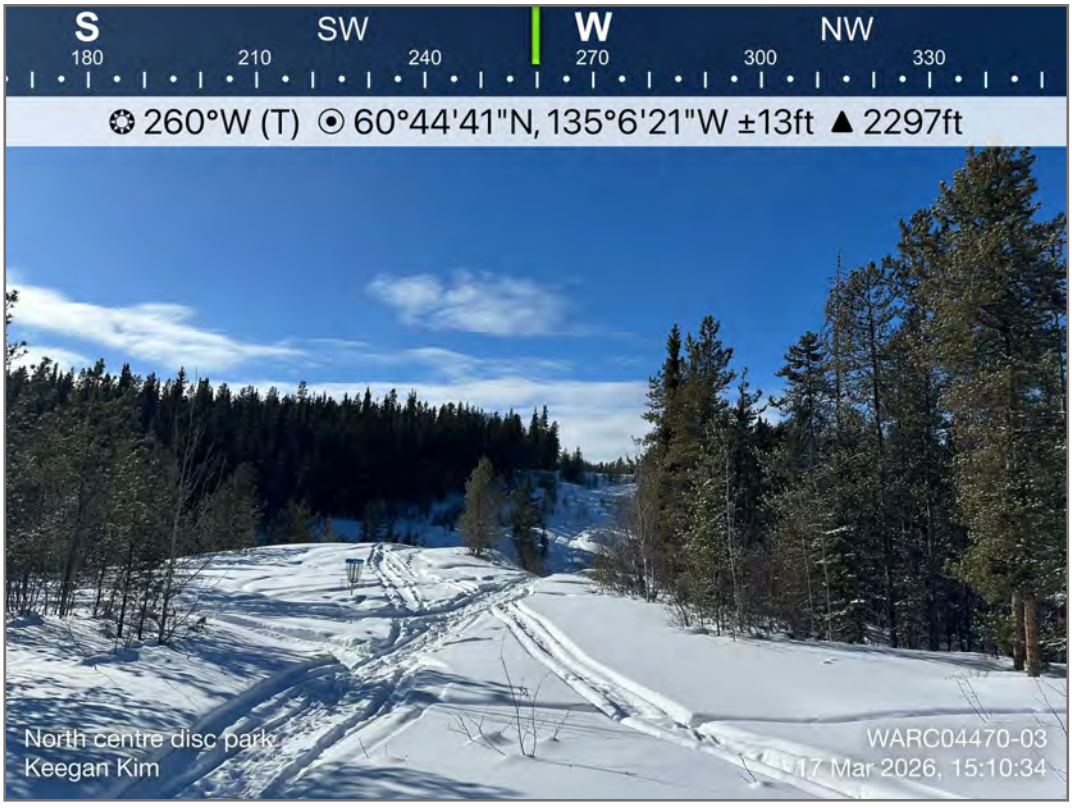


Photo 4: View of the cleared area for the Solstice Disc Golf Park, located in the northern section of the Property.

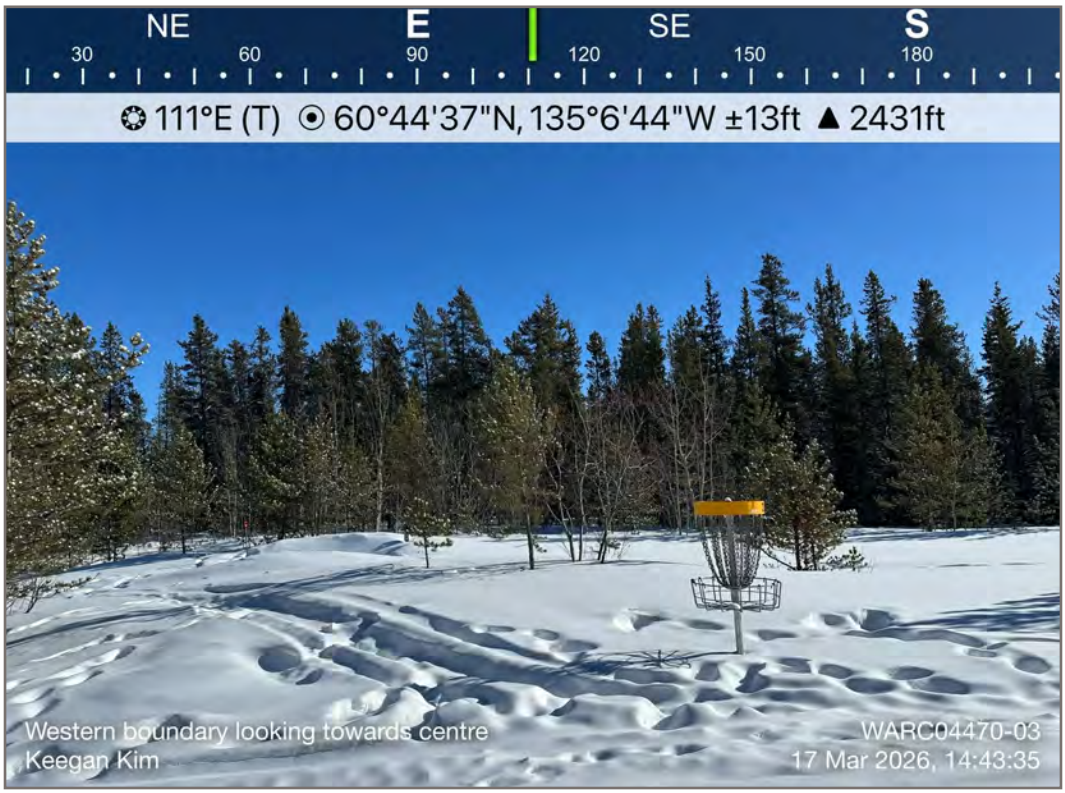


Photo 5: View of the a typical disc golf net found throughout the Solstice Disc Golf Park, taken from the western boundary of the Property looking east.



Photo 6: View of the western boundary of the Property, looking south.



Photo 7: View of the Property's southwestern boundary.



Photo 8: View of the Property's southern boundary near Kopper King.

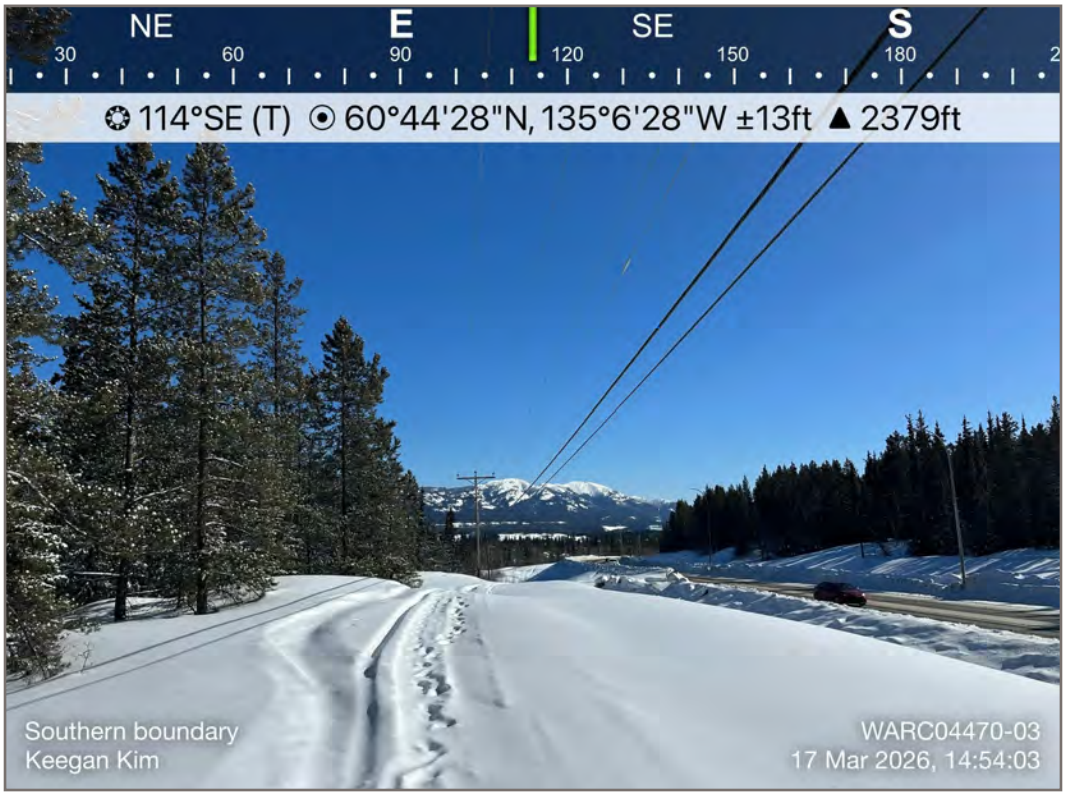


Photo 9: View of the Property's southern boundary, near Manitoulin Transport.



Photo 10: View of the Property from its southeastern corner, looking north.



Photo 11: View of the Property's eastern boundary, looking south.



Photo 12: View of the Property's northeastern portion, looking north.

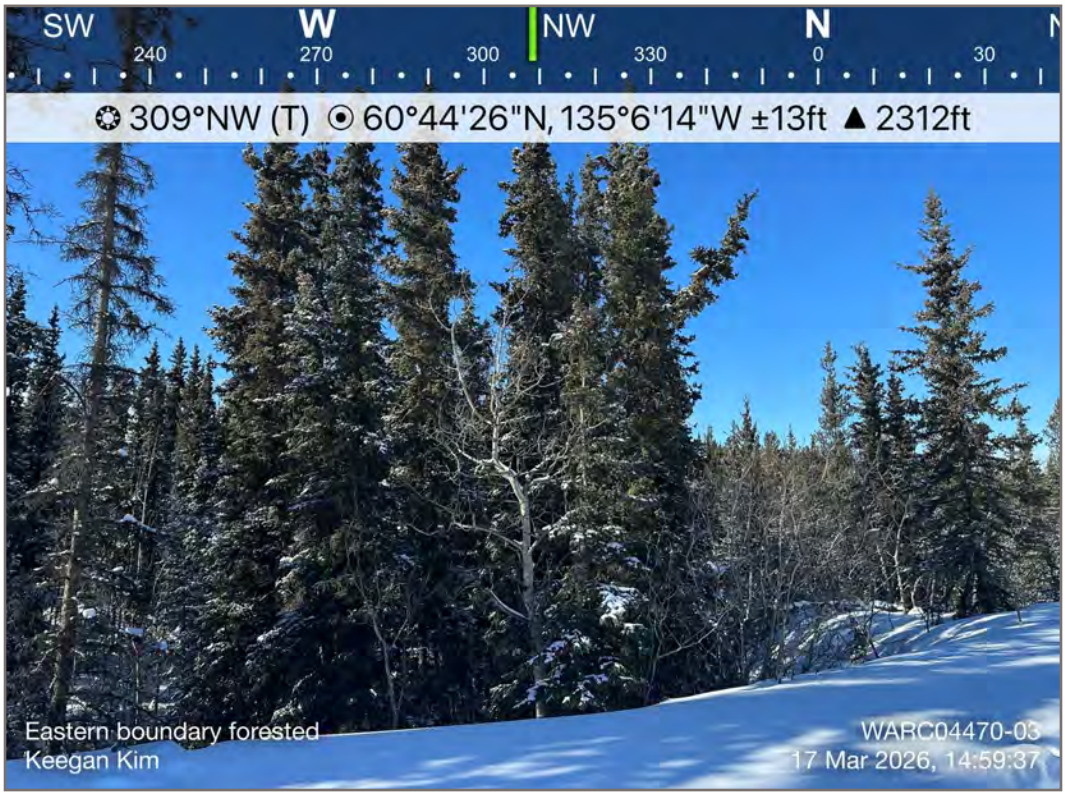


Photo 13: View of the Property's forested portion near its eastern boundary.



Photo 14: View of the Property's walking trail in the northern portion, with gates to block vehicle traffic.



Photo 15: View of surrounding sites, McIntyre Creek Pumphouse.

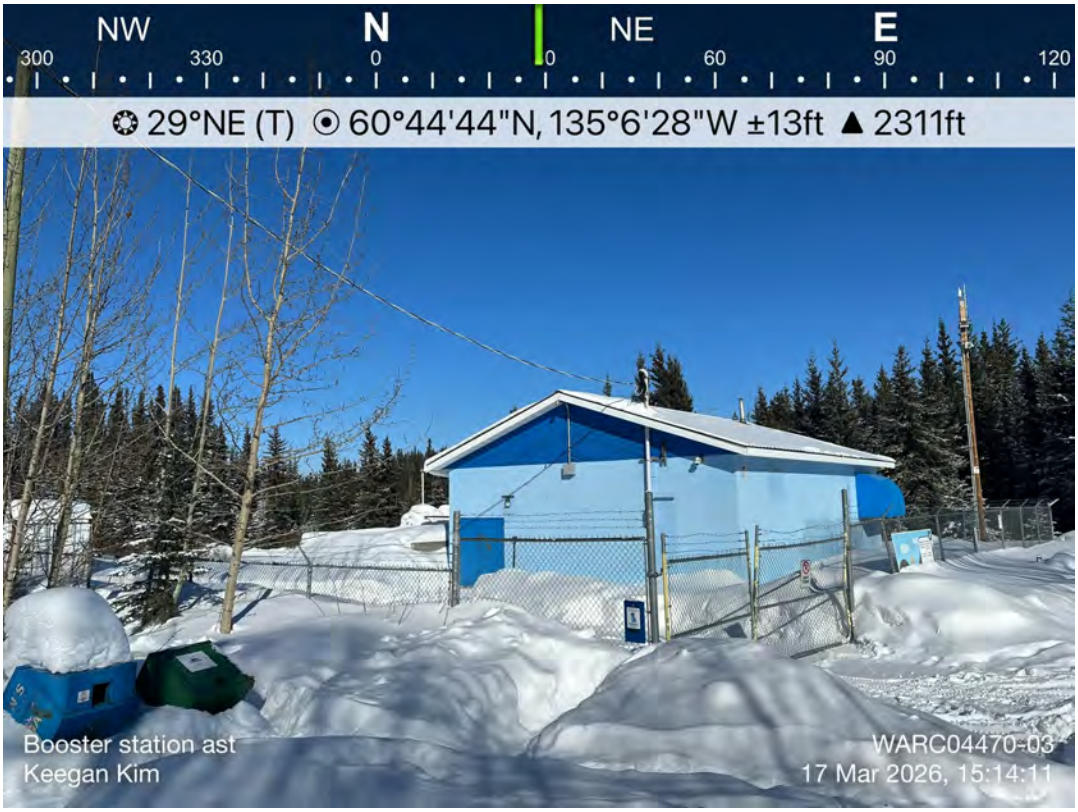


Photo 16: View of surrounding sites, including the McIntyre Creek Pumphouse, its fuel AST, and the garbage/recycle bins used by trail users.



Photo 17: View of surrounding sites, McIntyre Creek north of the Property.



Photo 18: View of surrounding sites, McIntyre Creek wetland area north of the Property.



Photo 19: View of surrounding sites, Yukon University senior housing building.

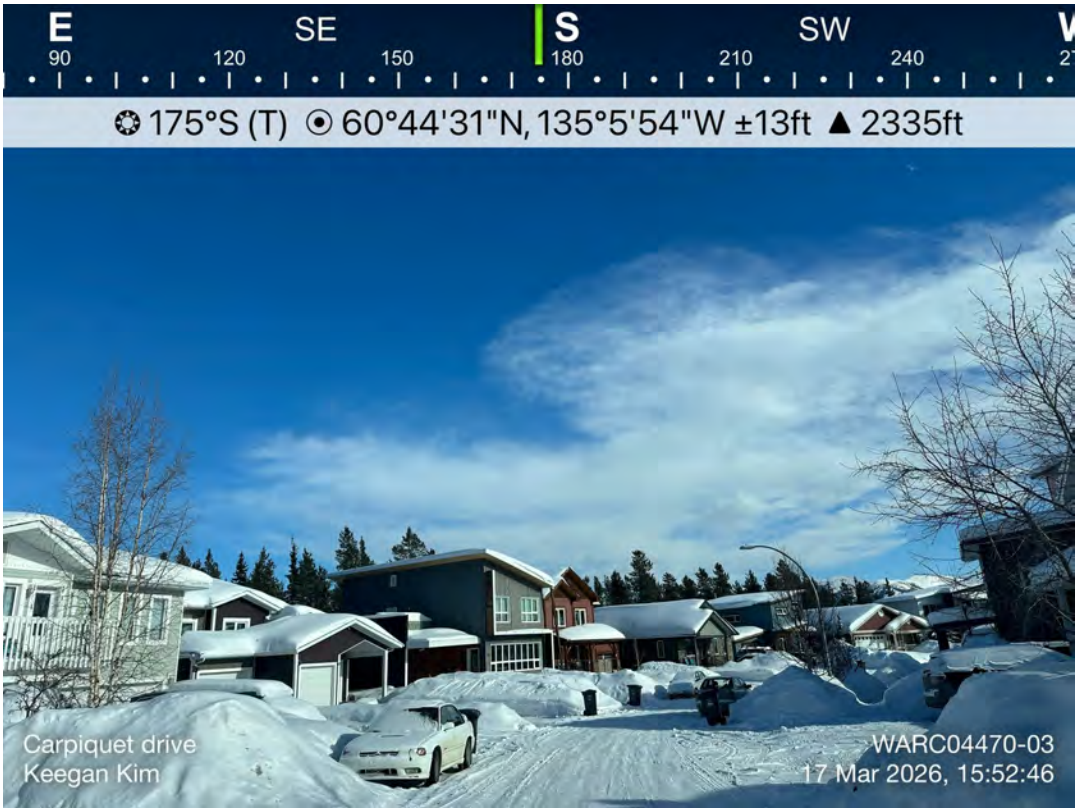


Photo 20: View of surrounding sites, Takhini North Neighborhood.

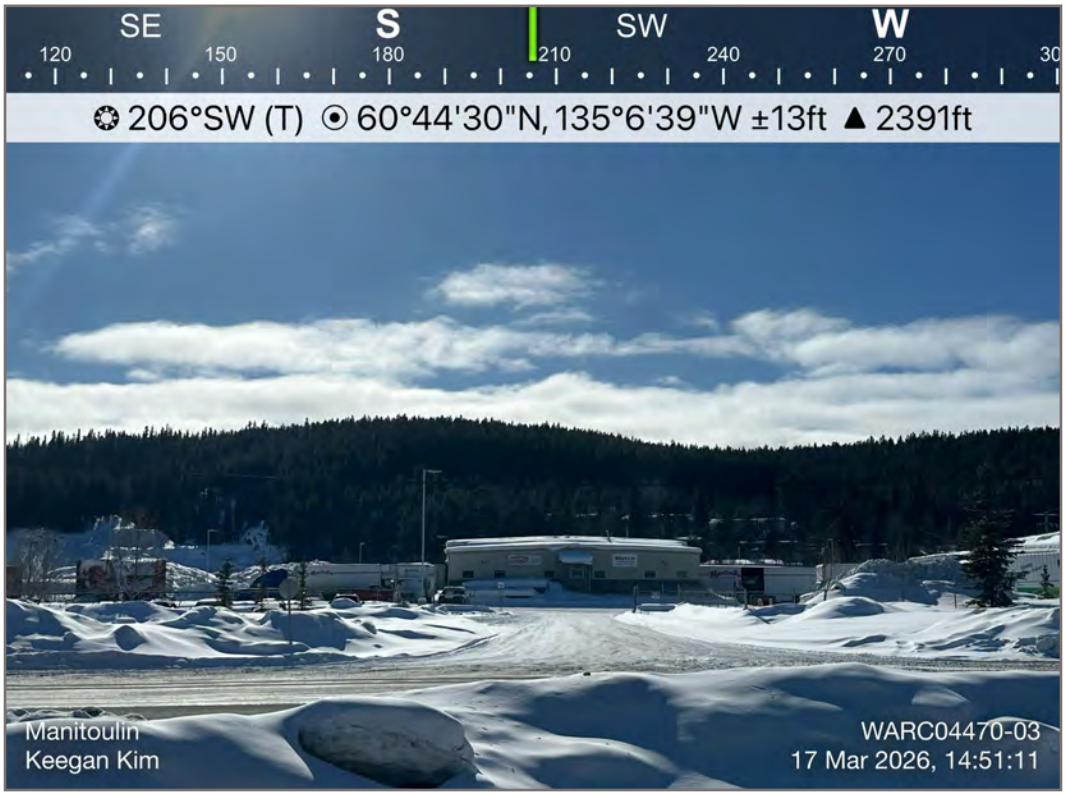


Photo 21: View of surrounding sites, Manitoulin Transport across Alaska/Klondike Highway.



Photo 22: View of surrounding sites, Kopper King, and Fas Gas Plus across Alaska/Klondike Highway.

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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.

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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.

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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 report, at or on the development proposed as of the date of the Professional Document requires a supplementary 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 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

LAND TITLES SEARCH RESULTS

Kim, Keegan1

From: Justine.Scheck <Justine.Scheck@yukon.ca>
Sent: Friday, March 13, 2026 3:23 PM
To: Kim, Keegan1
Subject: FW: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

You don't often get email from justine.scheck@yukon.ca. Learn why this is important

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. ⚠

Hi Keegan,
It looks like you've been given correct information about Lot 435 REM, but I'll try to add some explanation for context because it is a bit confusing.

A lot is not 'owned' by Yukon Government until it's titled. Most YG properties, particularly with assets are titled and thus a piece of public property owned by the Commissioner of Yukon. Yukon Government has administration and control of untitled land (surveyed or not surveyed), under the Yukon Lands Act or Territorial Lands (Yukon) Act. It's a bit different than ownership, and whether or not it matters depends on what you're trying to do with the land.

People often want to know if something is 'crown land' or not, and what they generally mean is, is it 'Yukon land'/public land? which is all the unsurveyed land, and surveyed but not titled land (like lot 435 REM), but 'crown land' is not an accurate description. In Yukon, the only crown land is that which is administered by the federal government. The Provinces use 'crown land' because they have constitutional authority over public land, but the framework is a bit different here.

Does that help a bit? Let me know if you have other questions.

Yukon

Justine Scheck
Special Projects Advisor
Energy Mines and Resources | Land Management Branch
T 867-667-5897 | F 867-393-6340 | Yukon.ca

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: March 13, 2026 2:48 PM
To: Justine.Scheck <Justine.Scheck@yukon.ca>
Subject: FW: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

---

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 2:40 PM

To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Good afternoon,

My name is Keegan, and I am with Tetra Tech's Whitehorse office. Our client, Kobayashi + Zedda Architects, is working with the Yukon Government to assess three potential sites for the new location of École Whitehorse Elementary School. I am preparing Phase I Environmental Site Assessment reports for these sites, and part of that work involves confirming current and historical ownership to identify any potential environmental concerns.

With that context, could you please advise who owns Lot 435 (REM)?

Thank you very much for your assistance.

Regards,
Keegan

Keegan Kim, M.Sc, GIT | Hydrogeologist-in-Training | Environment and Water Practice
Direct **+1 (867) 668-9221** | Business **+1 (867) 668-3068** | Mobile **+1 (778) 554-3372** | keegan.kim1@tetratech.com

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61 Wasson Place | Whitehorse, YT Y1A 0H7 Canada | tetratech.com | eba.ca

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TETRA TECH

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: Friday, March 13, 2026 1:38 PM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Good afternoon

We administer the location; we do not own.

Could you give the Land Management Branch a bit about yourself?

And a brief detail in why you are interested in Lot 435(REM)?

Thank you

Land Client Service
Land Management Branch (K-320)
Department of Energy, Mines & Resources
T 867-667-5215 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 11:50 AM
To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

> You don't often get email from keegan.kim1@tetratech.com. Learn why this is important

Thanks for the reply. Just to confirm, when you say your branch administers this lot, does that mean the parcel is Commissioner's Land owned by Yukon Government?

Regards,
Keegan

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: Friday, March 13, 2026 11:47 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Good morning/afternoon

We administer this Lot

Land Client Service
Land Management Branch (K-320)
Department of Energy, Mines & Resources
T 867-667-5215 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 10:35 AM
To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

> You don't often get email from keegan.kim1@tetratech.com. Learn why this is important

Hi Land Management Branch,

Nancy from the Land Titles Office mentioned you might be able to help. I am inquiring about the ownership of Lot 435 (REM), Group 804, Whitehorse — 52105 CLSR YT, 26830 LTO YT. This is the lot located across from the Kopper King.

According to the Land Titles Office, the lot has a registered survey plan but no title, and they suggested that ownership information may fall under your branch.

Any information you can provide would be appreciated.

Thanks,
Keegan

From: LTO Search <ltosearch@yukon.ca>
Sent: Friday, March 13, 2026 10:29 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Hi Keegan,

Under the old Land Titles Act, survey plans and notifications, patents and grants were separate. So even if a survey plan was registered, the instrument to rais title didn't always come at the same date or at all. Under the new act, we require both.

Land Management Branch (667-5215) may be able to help you with your question of ownership.

Sincerely,

Nancy Osborne
Clerk
Justice | Land Titles Office
T 867-667-5612 | F 867-393-6358 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 12, 2026 4:08 PM

To: LTO Search <ltosearch@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Hi Nancy,

Just to clarify—can Lot 435 (REM) have a lot name assigned but still be untitled at the same time? If so, would it be considered Crown land? I'm just trying to confirm who owns the lot.

This is the lot across from Kopper King.

Thanks,
Keegan

From: LTO Search <ltosearch@yukon.ca>
Sent: Friday, March 6, 2026 8:07 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Hi Keegan,

Lot 435 Remainder, Plan 26830 is not titled.

Sincerely,

Yukon

Nancy Osborne
Clerk
Justice | Land Titles Office
T 867-667-5612 | F 867-393-6358 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 5, 2026 12:01 PM
To: LTO Search <ltosearch@yukon.ca>
Subject: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Hello,

I'm looking for a Historic to Present (1900-Present) Land Titles record search for Lot 435 (REM) Group 804 Whitehorse, 52105 CLSR YT, 26830 LTO YT.

I could not find the active titles for the Property via the online portal, and I am needing the historical land titles records as well. We do want to try and go as far back as we can as we need to assess the historical use of the site. The purpose of our assessment is to gather and review to determine the historical use and any potential environmental implications.

We should have money on our account to cover the cost of the search. If there are insufficient funds, please let me know and I'll arrange additional funds to be added to our account.

Regards,
Keegan

Keegan Kim, M.Sc, GIT | Hydrogeologist-in-Training | Environment and Water Practice
Direct **+1 (867) 668-9221** | Business **+1 (867) 668-3068** | Mobile **+1 (778) 554-3372** | keegan.kim1@tetratech.com

Tetra Tech Canada | *Leading with Science®* | Geoenvironmental
61 Wasson Place | Whitehorse, YT Y1A 0H7 Canada | tetratech.com | eba.ca

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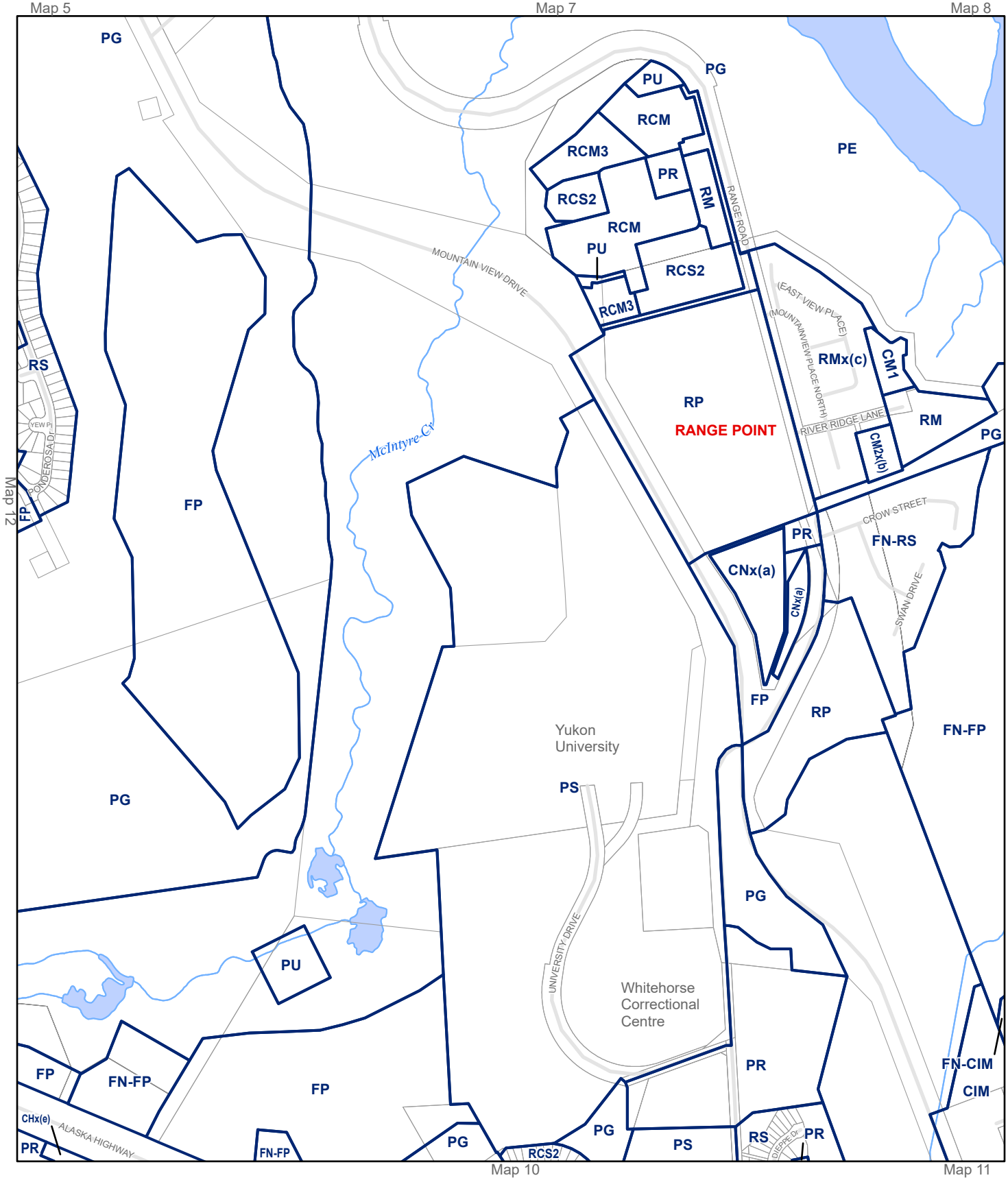
APPENDIX C

CITY OF WHITEHORSE ZONING MAPS

MAP 9

YUKON UNIVERSITY

RANGE POINT



Where a letter appears in brackets following a zoning designation, e.g. RSx(a), the letter corresponds to the 'special modifications' subsection for that zone.

N

0 440

Meters

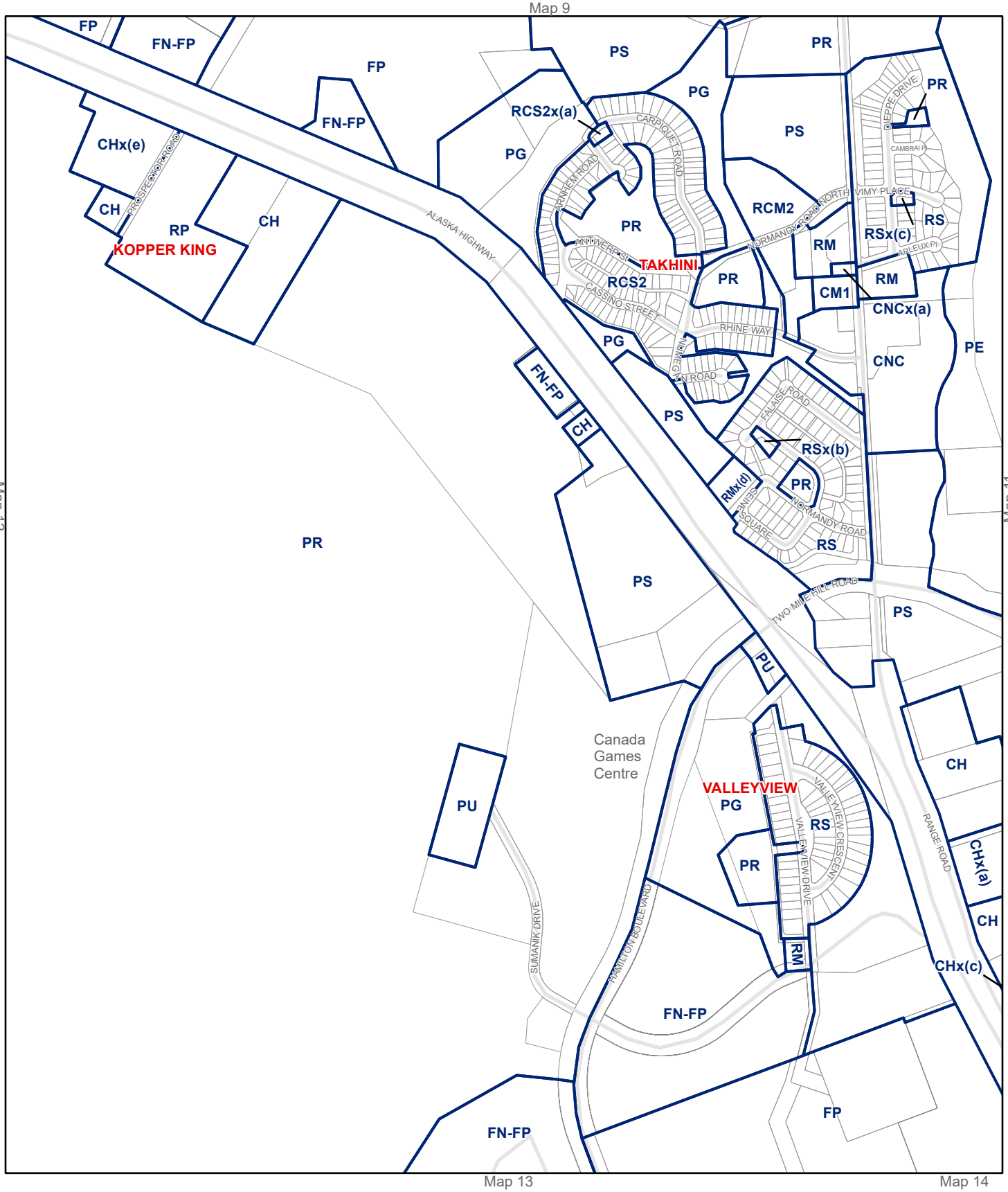
Projection: NAD 1983 UTM Zone 8

Consolidation date: February 18, 2025

MAP 10

KOPPER KING

TAKHINI, VALLEYVIEW



Where a letter appears in brackets following a zoning designation, e.g. RSx(a), the letter corresponds to the 'special modifications' subsection for that zone.

N

0 410

Meters

Projection: NAD 1983 UTM Zone 8

Consolidation date: February 18, 2025

13.3 FP Future Planning

13.3.1 Purpose

To provide a zone to protect land with no determined use in a generally undeveloped and natural state until such time as planning has occurred to determine appropriate zoning.

13.3.2 Principal Uses

a) community gardens and greenhouses
b) nature interpretation facilities
c) personal use fuel wood cutting

13.3.3 Secondary Uses (***Modified by Bylaw 2014-17 passed May 26, 2014***)

a) accessory building/structure
b) environmental protection areas
c) parks

13.3.4 Conditional Uses

a) boat launches
b) day-use areas
c) day-use cabins
d) docks
e) outdoor participant recreation services

13.3.5 Development Regulations

a) The maximum height is 10.0 m.
b) The minimum front yard is 10.0 m.
c) The minimum side yard is 10.0 m.
d) The minimum rear yard is 10.0 m.

13.3.6 Other Regulations

a) Council may require an applicant to enter into a Development Agreement for any proposed use within this zone to limit encumbrances to the future planning and orderly development of lands.
b) In addition to the regulations listed above, other regulations may apply. These include the general development regulations of section 5 (accessory development, site design, yards, etc.); the parking regulations of section 7; and the sign regulations of section 8.

APPENDIX D

GROUNDWATER INFORMATION NETWORK RESULTS

Groundwater Information Network

Francais English

GIN Basic Map Viewer

How to use this map



Zoom to a specific spatial extent

- Aquifers and Regions
  - Aquifers - NRCan
  - Aquifers - USGS
  - Hydrogeologic units - Newfoundland and Labrador
  - Hydrogeological Regions - Canada
- Water wells and Boreholes
  - Water Wells - Canada
  - Boreholes - Ontario
  - Water Wells - US NGWMN

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110195
Borehole Data Provider ID : 204110195
Information Source : ENVIRONMENT YUKON
Longitude : -135.089953
Latitude : 60.745761
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 103.63m
Elevation : 686.10m
CDEM Elevation : *676*m
CDSM Elevation : m
Water Use : Water exploration test hole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	2.13	**Sand** (More Info)	SAND	[26,53]%	[2E-7,6E-3]m/s
2.13	2.74	**Sand** (More Info)	very coarse SAND	[26,53]%	[2E-7,6E-3]m/s
2.74	13.12	**Silt** (More Info)	grey SILT, layers of SILT	[34,61]%	[1E-9,2E-5]m/s
13.12	23.77	**Clay** (More Info)	dr. grey CLAY	[34,57]%	[1E-11,4.7E-9]m/s
23.77	26.52	**Clay** (More Info)	light br. CLAY	[34,57]%	[1E-11,4.7E-9]m/s
26.52	31.70	**Gravel** (More Info) **Clay** (More Info)	GRAVEL and boulders some clay	[24,44]% [34,57]%	[3E-4,3E-2]m/s [1E-11,4.7E-9]m/s
31.70	34.44	**Till** (More Info) **Sand** (More Info)	SAND TILL	[26,53]%	[1E-12,2E-6]m/s [2E-7,6E-3]m/s
34.44	47.85	**Silt** (More Info) **Clay** (More Info)	fine SILT and CLAY	[34,61]% [34,57]%	[1E-9,2E-5]m/s [1E-11,4.7E-9]m/s
47.85	60.66	**Clay** (More Info)	br. CLAY	[34,57]%	[1E-11,4.7E-9]m/s
60.66	99.36	**Till** (More Info) **Silt** (More Info) **Clay** (More Info)	grey TILL, clay silt	[34,61]% [34,57]%	[1E-12,2E-6]m/s [1E-9,2E-5]m/s [1E-11,4.7E-9]m/s
99.36	99.97	**Bedrock** (More Info)	BEDROCK weathered		
99.97	103.63	**Bedrock** (More Info)	BEDROCK, greenstone		

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html?PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110195&

Timestamp: 2026-03-12T19:20:07.131-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110194
Borehole Data Provider ID : 204110194
Information Source : ENVIRONMENT YUKON
Longitude : -135.108295
Latitude : 60.745748
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 49.07m
Elevation : 699.90m
CDEM Elevation : *703*m
CDSM Elevation : m
Water Use : Water exploration test hole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	7.32	**Gravel** (More Info)	fine GRAVEL	[24,44]%	[3E-4,3E-2]m/s
7.32	19.51	**Sand** (More Info) **Clay** (More Info)	SAND, clay near 40ft.	[26,53]% [34,57]%	[2E-7,6E-3]m/s [1E-11,4.7E-9]m/s
19.51	21.03	**Till** (More Info)	TILL br.		[1E-12,2E-6]m/s
21.03	43.28	**Till** (More Info)	TILL grey		[1E-12,2E-6]m/s
43.28	49.07	**Bedrock** (More Info)	BEDROCK		

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110194&
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Timestamp: 2026-03-12T19:20:04.235-04:00

APPENDIX E

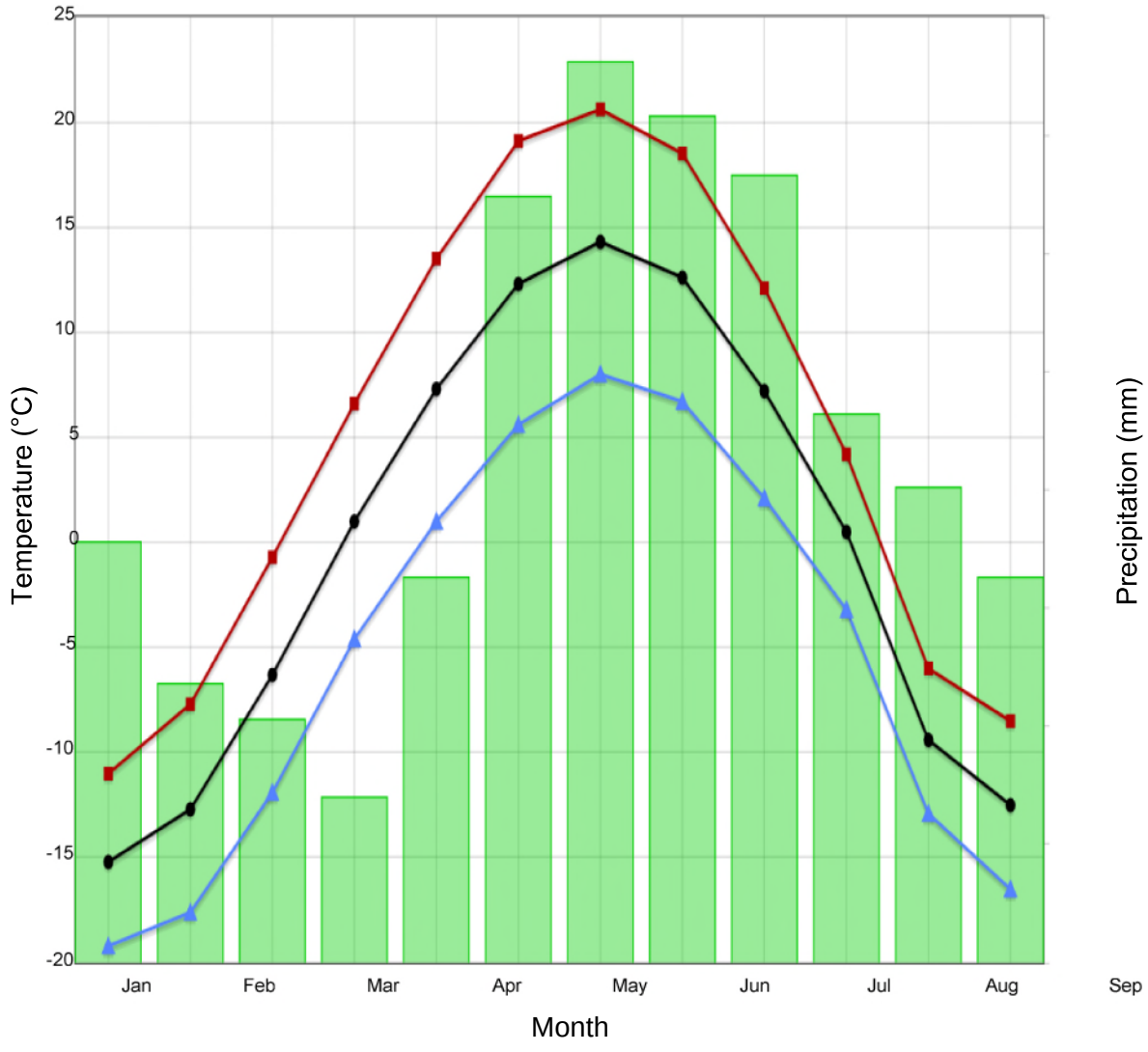
WHITEHORSE HISTORICAL CLIMATE DATA

Government of Canada | Gouvernement du Canada

Canadian Climate Normals 1981-2010 Station Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1981 to 2010 Canadian Climate Normals WHITEHORSE A



	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE A
YUKON TERRITORY

Latitude:	60°42'34.200" N
Longitude:	135°04'07.800" W
Elevation:	706.20 m
Climate ID:	2101300
WMO ID:	71964
TC ID:	YXY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Co
Daily Average (°C)	-15.2	-12.7	-6.3	1.0	7.3	12.3	14.3	12.6	7.2	0.5	-9.4	-12.5	-0.1	
Standard Deviation	6.5	4.7	3.5	2.3	1.5	1.3	0.9	1.4	1.6	1.8	4.8	4.7	3.3	
Daily Maximum (°C)	-11.0	-7.7	-0.7	6.6	13.5	19.1	20.6	18.5	12.1	4.2	-6.0	-8.5	5.1	

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Minimum (°C)	-19.2	-17.6	-11.9	-4.6	1.0	5.6	8.0	6.7	2.1	-3.2	-12.9	-16.5	-5.2	C
Extreme Maximum (°C)	9.0	11.7	11.7	21.8	34.1	**34.4**	32.8	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	1977/ 26	1968/ 27	1979/ 22	2002/ 30	1983/ 30	**1969/ 14**	1951/ 09	1999/ 05	1942/ 03	2003/ 03	1970/ 02	2004/ 23		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-2.8	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/ 31**	1968/ 02	1972/ 08	1986/ 10	2002/ 03	1971/ 03	1984/ 19	1948/ 25	1983/ 27	1982/ 28	2006/ 27	1942/ 19		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	0.3	0.0	0.0	1.2	14.3	32.4	38.1	35.5	29.0	8.8	1.0	0.4	160.9
Snowfall (cm)	25.4	18.3	14.8	7.2	2.0	0.0	0.0	0.3	4.7	18.6	27.0	23.5	141.8
Precipitation (mm)	17.8	11.8	10.3	7.0	16.3	32.4	38.1	35.8	33.3	23.2	20.1	16.3	262.3
Average Snow Depth (cm)	22	27	23	8	0	0	0	0	0	2	10	15	9
Median Snow Depth (cm)	22	27	23	8	0	0	0	0	0	0	10	15	9
Snow Depth at Month-end (cm)	26	25	18	1	0	0	0	0	0	5	13	18	9
Extreme Daily Rainfall (mm)	3.4	0.8	0.8	4.4	12.6	**44.9**	23.2	30.7	24.6	18.3	9.4	4.2	
Date (yyyy/dd)	1981/ 03	1984/ 04	1944/ 15	1983/ 30	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1983/ 04	1970/ 02	1949/ 03	1981/ 18	

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cc
Extreme Daily Snowfall (cm)	14.0	16.7	**27.2**	16.6	12.2	12.7	0.0	8.6	21.6	15.0	14.6	27.0		
Date (yyyy/dd)	1968/ 03	1982/ 09	**1967/ 08**	2006/ 14	1942/ 04	1972/ 01	1942/ 01	1974/ 22	1956/ 27	1999/ 23	1978/ 23	1980/ 25		
Extreme Daily Precipitation (mm)	9.5	10.4	10.4	15.8	12.6	**44.9**	23.2	30.7	25.2	23.6	11.4	18.7		
Date (yyyy/dd)	1994/ 17	1952/ 28	1962/ 07	2006/ 14	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1986/ 23	1970/ 02	1955/ 06	1980/ 25		
Extreme Snow Depth (cm)	86	94	**94**	66	38	0	0	3	20	21	52	69		
Date (yyyy/dd)	1972/ 30	1972/ 16	**1972/ 01**	1967/ 13	1972/ 01	1955/ 01	1955/ 01	1969/ 11	1956/ 28	1982/ 31	1978/ 25	1980/ 29		

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

► Frost-Free

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Station / Element Metadata

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a station with 30 years of record between 1981 and 2010 with no missing years would be a more reliable normal than a station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE A

Province	YT
Latitude (dd mm):	60 42 N
Country	CAN

Longitude (ddd mm):	135 04 W
Time Zone	PST
Latitude (decimal degrees):	60.71 N
Climate ID:	2101300
Longitude (decimal degrees):	135.07 W
WMO ID:	71964
Elevation (m):	706.2
TC ID:	YXY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1981	2007	25	3	8675	99.7
Standard Deviation	1981	2007	25	3	8675	99.7
Daily Maximum (°C)	1981	2007	25	3	8675	99.7
Daily Minimum (°C)	1981	2007	25	3	8675	99.7
Extreme Maximum (°C)	1942	2007			22837	99.9
Extreme Minimum (°C)	1942	2007			22836	99.9

▼ Precipitation

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Rainfall (mm)	1981	2007	25	3	8644	99.3
Snowfall (cm)	1981	2007	25	3	8644	99.3
Precipitation (mm)	1981	2007	25	3	8644	99.3
Average Snow Depth (cm)	1981	2007	24	3	8491	97.5
Median Snow Depth (cm)	1981	2007	24	3	8491	97.5
Snow Depth at Month-end (cm)	1981	2007	25	3	284	99.3
Extreme Daily Rainfall (mm)	1942	2007			22835	99.9
Extreme Daily Snowfall (cm)	1942	2007			22836	99.9
Extreme Daily Precipitation (mm)	1942	2007			22836	99.9
Extreme Snow Depth (cm)	1955	2007			18132	99.6

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

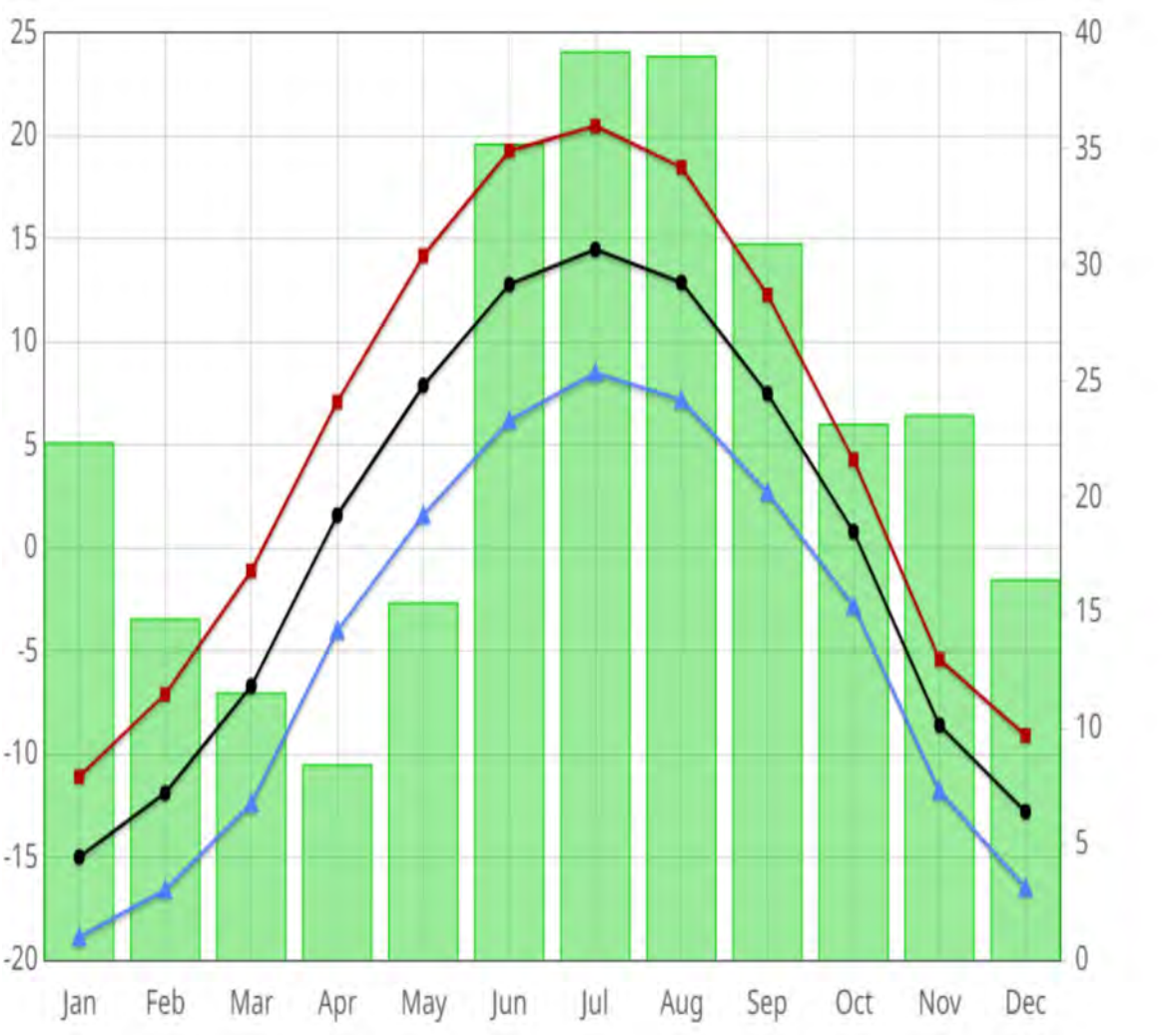
► Frost-Free

Date modified:
2019-02-20

Canadian Climate Normals 1991-2020 Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1991 to 2020 Canadian Climate Normals
WHITEHORSE



	Daily Maximum Temperature (°C)
	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-15.0	-11.9	-6.7	1.6	7.9	12.8	14.5	12.9	7.5	0.8	-8.6	-12.8	0.2	A
Standard Deviation	4.5	4.5	3.4	1.9	1.5	1.2	1.0	1.3	1.5	1.7	4.0	4.3	1.6	A
Daily Maximum (°C)	-11.1	-7.1	-1.1	7.1	14.2	19.3	20.5	18.5	12.3	4.3	-5.4	-9.1	5.2	A
Daily Minimum (°C)	-18.9	-16.6	-12.4	-4.0	1.6	6.2	8.5	7.2	2.7	-2.8	-11.8	-16.5	-4.7	A

Temperature Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Minimum Daily Mean (°C)	-48.1	-47.5	-31.7	-20.3	-6.4	3.3	5.6	0.8	-9.6	-24.2	-37.3	-44.5		
Date (yyyy/dd)	1947/31	1947/02	1972/08	1944/01	2002/03	1955/03	1945/06	1984/28	1983/27	1975/31	1948/27	1977/09		
Maximum Daily Mean (°C)	6.9	8.4	8.5	12.2	23.7	23.9	22.8	23.1	18.9	13.4	7.5	7.2		
Date (yyyy/dd)	2009/18	1968/27	2019/22	2003/25	1983/30	2004/23	1958/05	1994/09	2017/05	1958/01	1970/02	1999/23		
Extreme Maximum (°C)	10.0	11.7	16.8	21.8	34.1	**34.4**	33.2	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	2009/18	1968/27	2016/31	2002/30	1983/30	**1969/14**	2009/30	1999/05	1942/03	2003/03	1970/02	2004/23		
Minimum Daily Maximum (°C)	-43.9	-44.4	-24.8	-15.0	-1.1	6.7	7.2	2.7	-5.4	-20.0	-33.9	-42.7		
Date (yyyy/dd)	1947/31	1947/02	2007/01	1944/01	2002/02	1943/07	1950/27	1984/27	1983/26	1975/31	1948/27	1977/09		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-5.7	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/31**	1968/02	1972/08	1986/10	2002/03	2012/04	1984/19	1948/25	1983/27	1982/28	2006/27	1942/19		
Maximum Daily Minimum (°C)	3.7	5.0	4.6	5.6	13.3	17.2	17.2	17.1	14.3	10.2	4.4	5.2		
Date (yyyy/dd)	2009/18	1968/27	2019/18	1953/28	1983/30	1969/16	1999/14	1994/09	2013/07	2003/04	1956/28	1999/23		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Precipitation (mm)	22.3	14.7	11.5	8.4	15.4	35.2	39.2	39.0	30.9	23.1	23.5	16.4	279.6	C

Precipitation Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Extreme Daily Precipitation (mm)	16.2	17.9	10.4	15.8	12.6	**44.9**	30.9	30.7	25.2	23.6	21.3	18.7		
Date (yyyy/dd)	2015/21	2020/10	1962/07	2006/14	2000/26	**1985/27**	2014/04	1948/01	1986/23	1970/02	2020/02	1980/25		

▼ Days With ...

Days With ...

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Freezing Rain or Freezing Drizzle	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.29	0.28	0.21	0.99	A
Thunderstorms	0.0	0.11	0.0	0.0	0.33	1.9	1.9	0.46	0.11	0.07	0.0	0.03	4.9	A
Hail	0.0	0.0	0.0	0.0	0.07	0.04	0.14	0.04	0.0	0.0	0.0	0.0	0.29	A
Fog, Ice Fog, or Freezing Fog	2.2	0.64	0.07	0.11	0.04	0.29	0.29	0.50	1.1	1.1	1.7	1.3	9.3	A
Smoke or Haze	0.0	0.04	0.0	0.07	0.22	0.64	1.2	1.4	0.04	0.0	0.07	0.07	3.7	A

▼ Days with Maximum Temperature

Days with Maximum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
<= 0 °C	26.4	22.2	14.1	2.1	0.05	0.0	0.0	0.0	0.16	5.0	22.9	25.9	118.7	C
> 0 °C	4.6	6.1	16.9	27.9	31.0	30.0	31.0	31.0	29.8	26.0	7.2	5.1	246.5	C
> 10 °C	0.0	0.04	0.52	7.3	25.0	29.7	31.0	30.4	22.4	3.2	0.08	0.04	149.7	C
> 20 °C	0.0	0.0	0.0	0.19	2.9	11.8	16.6	10.0	0.76	0.0	0.0	0.0	42.2	C
> 30 °C	0.0	0.0	0.0	0.0	0.0	0.43	0.25	0.19	0.0	0.0	0.0	0.0	0.87	C
> 35 °C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C

▼ Days with Minimum Temperature

Days with Minimum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
> 0 °C	0.43	0.35	0.68	5.2	19.9	29.4	31.0	30.4	21.9	8.9	0.74	0.62	149.5	C
<= 2 °C	30.8	28.1	30.7	28.4	17.9	3.1	0.15	2.5	12.9	27.3	29.8	30.9	242.6	C
<= 0 °C	30.6	27.9	30.3	24.8	11.1	0.63	0.04	0.65	8.1	22.1	29.3	30.4	215.8	C
< -2 °C	29.6	27.1	28.0	18.4	4.8	0.0	0.0	0.04	3.5	15.2	27.4	29.7	183.7	C
< -10 °C	23.7	20.7	15.6	3.0	0.12	0.0	0.0	0.0	0.0	2.8	16.1	22.6	104.5	C
< -20 °C	13.6	10.2	6.2	0.56	0.0	0.0	0.0	0.0	0.0	0.08	4.3	10.2	45.2	C
< -30 °C	5.4	2.6	0.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.63	3.5	13.0	C

▼ Days with Precipitation

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 0.2 mm	12.7	9.2	7.2	5.1	7.3	11.1	13.0	12.0	12.2	10.7	13.0	11.3	124.7	C

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 5 mm	0.88	0.46	0.43	0.36	1.1	2.1	2.5	2.9	1.7	1.0	0.92	0.43	14.8	C
>= 10 mm	0.15	0.13	0.0	0.04	0.17	0.77	0.76	0.81	0.68	0.25	0.12	0.09	4.0	C
>= 25 mm	0.0	0.0	0.0	0.0	0.0	0.18	0.08	0.0	0.0	0.0	0.0	0.0	0.26	C

▼ Wind

Wind

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Speed (km/h)	11.3	11.9	11.8	11.4	11.4	10.1	9.8	10.1	11.8	12.2	12.3	12.5	11.4	A
Most Frequent Direction	S	S	S	S	S	S	S	S	S	S	S	S	S	A

Wind Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Direction of Extreme Speed	SE	SE	S	N	SE	SE	E	S	S	SE	SE	SE		
Extreme Speed (km/h)	72	68	64	60	64	56	63	52	72	63	68	**72**		
Date (yyyy/dd)	1962/09	1957/15	1953/14	1966/09	1965/06	1965/16	1959/30	1998/29	1967/17	1961/28	1962/18	**1954/17**		
Extreme Gust Speed (km/h)	100	106	93	89	85	90	91	84	101	97	**106**	97		
Date (yyyy/dd)	1965/17	1964/19	1965/10	1965/16	1965/02	1963/26	1982/07	1960/11	1967/18	1958/01	**1962/18**	1960/14		
Direction of Extreme Gust Speed	SE	SE	SW	N	SE	W	SE	SE	S	S	SE	SE		

▼ Degree Days

Degree Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Above 24 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	C
Above 18 °C	0	0	0	0	0	3.5	3.5	3.3	0	0	0	0	10.4	C
Above 15 °C	0	0	0	0	1.1	15.1	22.9	16.2	0.7	0	0	0	55.9	C
Above 10 °C	0	0	0	0.3	18.3	90.1	138.9	95.8	12.6	0.7	0	0	356.7	C
Above 5 °C	0.1	0.1	1	10.6	95.5	232.7	293.3	242.7	90.2	10.1	0.1	0.2	976.6	C
Above 0 °C	2.8	2.8	13.3	80.7	239.1	382.6	448.3	397.5	225.7	68.2	4.9	2.6	1868.5	C
Below 0 °C	467.7	343.6	211.4	32.2	0.9	0	0	0	1.1	45.5	266.2	406	1774.7	C
Below 5 °C	620	482	354.1	112.2	12.4	0	0	0.3	15.5	142.4	411.5	558.6	2,709	C
Below 10 °C	774.9	623.1	508.2	251.9	90.1	7.5	0.5	8.3	87.9	288.1	561.4	713.4	3915.3	C
Below 15 °C	929.9	764.3	663.2	401.6	228	82.4	39.5	83.7	226.1	442.4	711.4	868.4	5440.8	C
Below 18 °C	1022.9	849.1	756.2	491.6	319.9	160.9	113.1	163.8	315.4	535.4	801.4	961.4	6490.9	C

▼ Quintiles

Quintiles

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 1 (Lower Bound)	9.1	0	0	0	2	8.8	14.2	9.9	5.9	5.9	5.8	3.2		
Quintile 1 (Upper Bound)	11.9	6	2.2	1.4	5.3	19.8	26.5	22.5	18.1	14.3	12.3	8.3		

Quintiles														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 2 (Upper Bound)	20.1	8.7	6.8	3.7	11.6	30	31.8	31.9	20.9	18.6	18.6	14.1		
Quintile 3 (Upper Bound)	22.9	14	15	7.4	16.8	38.4	40.4	42.9	28	26.3	25.2	17.5		
Quintile 4 (Upper Bound)	26.5	23.7	21.8	16.3	22.9	49.1	54.9	54.1	40.2	30.8	31.7	23.1		
Quintile 5 (Upper Bound)	44.7	40.6	29.1	29.7	43.6	82.2	65.6	82.1	80.3	42.2	55.8	65.4		

▼ Humidity

Humidity														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Vapour Pressure (kPa)	0.2	0.2	0.3	0.4	0.5	0.8	1	0.9	0.7	0.5	0.3	0.2	0.5	A

▼ Pressure

Pressure														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Station Pressure (kPa)	92.6	92.8	92.7	92.7	93	93	93.2	93.1	92.8	92.5	92.4	92.4	92.8	A
Average Sea Level Pressure (kPa)	101.4	101.5	101.3	101.2	101.4	101.3	101.5	101.4	101.2	101.1	101.1	101.1	101.3	A

▼ Visibility (hours with)

Visibility (hours with)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
< 1 km	26.4	2.3	0.6	0.3	0.1	0.6	0.5	1.2	2.1	2.8	6	5.8	48.7	A
1 to 9 km	98.3	58.9	53.1	16.5	8.8	10.5	12.3	19	20	62.4	119.2	85.4	564.2	A
> 9 km	619	617.2	689.3	702.9	734.9	708.7	730.3	723.3	697.3	678.2	594.1	652.2	8147.2	A

▼ Frost-Free

1991 to 2020 Canadian Climate Normals Data

Frost-Free		
	Date/Days	Code
Average Date of Last Spring Frost	Jun 03	D
Average Date of First Fall Frost	Aug 28	D
Average Length of Frost-Free Period	85 Days	D

1991 to 2020 Canadian Climate Normals Data

Frost-Free

	10%	25%	33%	50%	66%	75%	90%
Probability of first temperature in fall <= 0°C, on or before (Date)	Jun 22	Jun 15	Jun 10	Jun 04	Jun 02	May 28	May 22
Probability of last temperature in spring <= 0°C, on or after (Date)	Aug 11	Aug 22	Aug 25	Aug 30	Sep 03	Sep 04	Sep 14
Probability of frost-free period equal to or less than indicated period (Days)	61	68	76	85	91	96	103

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Element Analytics

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a composite station with 30 years of record between 1991 and 2020 with no missing years would be a more reliable normal than a composite station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1991	2020	29	3	9994	97.4
Standard Deviation	1991	2020	29	3	9994	97.4
Daily Maximum (°C)	1991	2020	29	3	9995	97.4
Daily Minimum (°C)	1991	2020	29	3	10040	97.9

Temperature Extremes (Long-Term)

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Maximum Daily Mean (°C)	1942	2020			27922	99.5
Minimum Daily Mean (°C)	1942	2020			27922	99.5
Extreme Maximum (°C)	1942	2020			27929	99.5
Minimum Daily Maximum (°C)	1942	2020			27929	99.5
Maximum Daily Minimum (°C)	1942	2020			27943	99.6
Extreme Minimum (°C)	1942	2020			27943	99.6

▼ Precipitation

Precipitation						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Precipitation (mm)	1991	2020	27	4	8889	88

Precipitation Extremes (Long-Term)						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Extreme Daily Precipitation (mm)	1942	2020			27814	99.6

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

▶ Frost-Free

▼ Composite Metadata / Threads

The Climate Normals, Averages, and Extremes are based on Canadian climate composite stations with at least 15 years of data between 1991 and 2020. Composite stations are comprised of one or more stations operated by the Meteorological Service of Canada (MSC) or its partners, where data from individual stations are joined together to create a 30-year data series for a given location. All stations (and associated metadata) used as part of the composite are listed below, alongside the threads used to calculate each Normals/Extremes element.

WHITEHORSE

YUKON TERRITORY

Related Data
Calculation Information

Normals Data

Element Analytics

Download Data

☑ Composite Station Metadata (CSV)

☐ Composite Station Threads (CSV)

Note:

Both files (CSV) can be downloaded

together as a zipped folder

Download

Composite Station Metadata

All stations used in the composite for all Normals and Extremes elements are listed. Station metadata includes station name, station identifiers, coordinates, and elevation.

Composite Station Name: WHITEHORSE

Station Name	Climate ID	WMO ID	TC ID	Latitude	Longitude	Elevation (m)
WHITEHORSE A	2101303		YXY	60°42'34.000" N	135°04'02.000" W	706.2
WHITEHORSE A	2101300		YXY	60°42'34.200" N	135°04'07.800" W	706.2
WHITEHORSE AUTO	2101310		VXY	60°43'59.000" N	135°05'52.000" W	707

Composite Station Threads

Station composites are threaded from the beginning of the Normals period starting in 1991 to the end of 2020, where the predecessor site's data is used until the end of its period of record and is then joined to the current operating site to extend the time series. Threads are generated by climate element for hourly and daily data, and may vary due to differences in station history, instrumentation, meteorological data availability, data quality, or proximity. Normals and Extremes elements are grouped based on the climate element used in its calculation. For long-term extremes (LTE), the same Normals period threads are extended back in time to the earliest date of data available from the first station used in the data series. These use the LTE Start Date instead of the Start Date, that applies to normals period elements.

For additional station metadata information, refer to the above section "Composite Station Metadata".

Composite Station Name: WHITEHORSE

▼ Temperature

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Daily Average (°C) • Standard Deviation • Maximum Daily Mean (°C) (LTE) • Minimum Daily Mean (°C) (LTE)	DAILY MEAN TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Maximum (°C) • Extreme Maximum (°C) (LTE) • Minimum Daily Maximum (°C) (LTE)	DAILY MAXIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Minimum (°C) • Maximum Daily Minimum (°C) (LTE) • Extreme Minimum (°C) (LTE)	DAILY MINIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▼ Precipitation

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Precipitation (mm) • Extreme Daily Precipitation (mm) (LTE)	DAILY TOTAL PRECIPITATION	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Quintiles

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

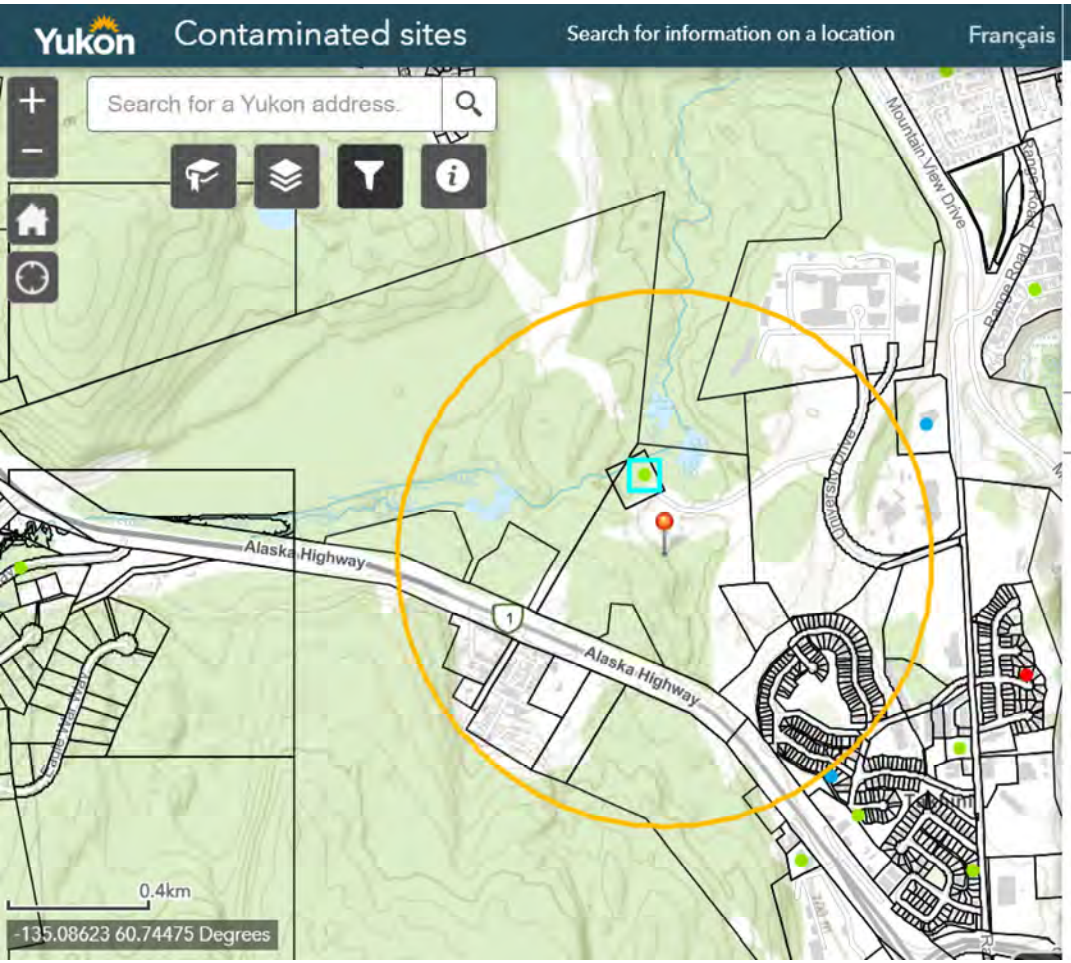
▶ Frost-Free

Date modified:

2023-09-18

APPENDIX F

YUKON GOVERNMENT ENVIRONMENTAL PROTECTION BRANCH SPILLS AND CONTAMINATED SITES SEARCH



Contaminated site radial search

Search for an address or locate on map

Mcintyre Creek, Whitehorse, Yukon

Show results within (Meters) 750

0 2500

Contaminated Sites Information

Approximate Distance: 240.65 m

McIntyre Creek Pumphouse

Site Name	McIntyre Creek Pumphouse
Classification	Remediated
Contaminants of Concern	PHCs
Civic Address	College Drive, Whitehorse, YT
Community	Whitehorse
Legal Address	
CLSR	
LTO	
Parcel ID	

APPENDIX G

ENVIRONMENT AND CLIMATE CHANGE CANADA SPILLS AND CONTAMINATED SITES REGISTRY SEARCH RESULTS

Environment and Climate Change Canada | Environnement et Changement climatique Canada

9th Floor, Place Vincent Massey Annex
351 Saint-Joseph Blvd.
Gatineau, Québec K1A 0H3

Your File Votre référence
EA2026-0162338

Our File Notre reference
E-2025-01277

March 11, 2026

Mr. Keegan Kim
Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7

Dear Mr. Kim,

This is to acknowledge receipt on March 11, 2026 of your request under the *Access to Information Act* for:

"OWNER: Yukon Government

PROPERTY: Lot 435 (REM), across from Kopper King, Whitehorse, Yukon
• Group 804, 52105 CLSR YT, 26830 LTO YT *See the map showing site location.

To the purpose of a Phase I Environmental Site Assessment on the Property, we request information pertaining to the environmental quality of the site from historical to present. Records of spills, environmental assessments, cleanups, above ground or underground tanks, and anything that could affect the environmental quality of the soil or water at the site.

Authorization: {Miguel MARQUES}"

Please note that this also serves as a receipt for the $5.00 application fee.

We have started processing your request and will contact you as soon as possible. Please find enclosed our principles for assisting your request.

If you have any questions regarding this request, please do not hesitate to contact me by email at *alix.malisani@ec.gc.ca.* Please quote the above file number on all future correspondence concerning this request.

.../2

Canada

Yours sincerely,

(Signed) by:

Alix Malisani
Access to Information and Privacy Division

Enclosure

Our principles for assisting your request

In processing your request under the *Access to Information Act* or *Privacy Act*, we will:

1. Process your request without regard to your identity.

2. Offer reasonable assistance throughout the request process.

3. Provide information on the *Access to Information Act* or *Privacy Act*, including information on the processing of your request and your right to complain to the Information Commissioner of Canada or Privacy Commissioner of Canada.

4. Inform you as appropriate and without undue delay when your request needs to be clarified.

5. Make every reasonable effort to locate and retrieve the requested records/personal information under the control of Environment and Climate Change Canada.

6. Apply limited and specific exemptions to the requested records/personal information.

7. Provide accurate and complete responses.

8. Provide timely access to the requested information/personal information.

9. Provide records/personal information in the format and official language requested, as appropriate.

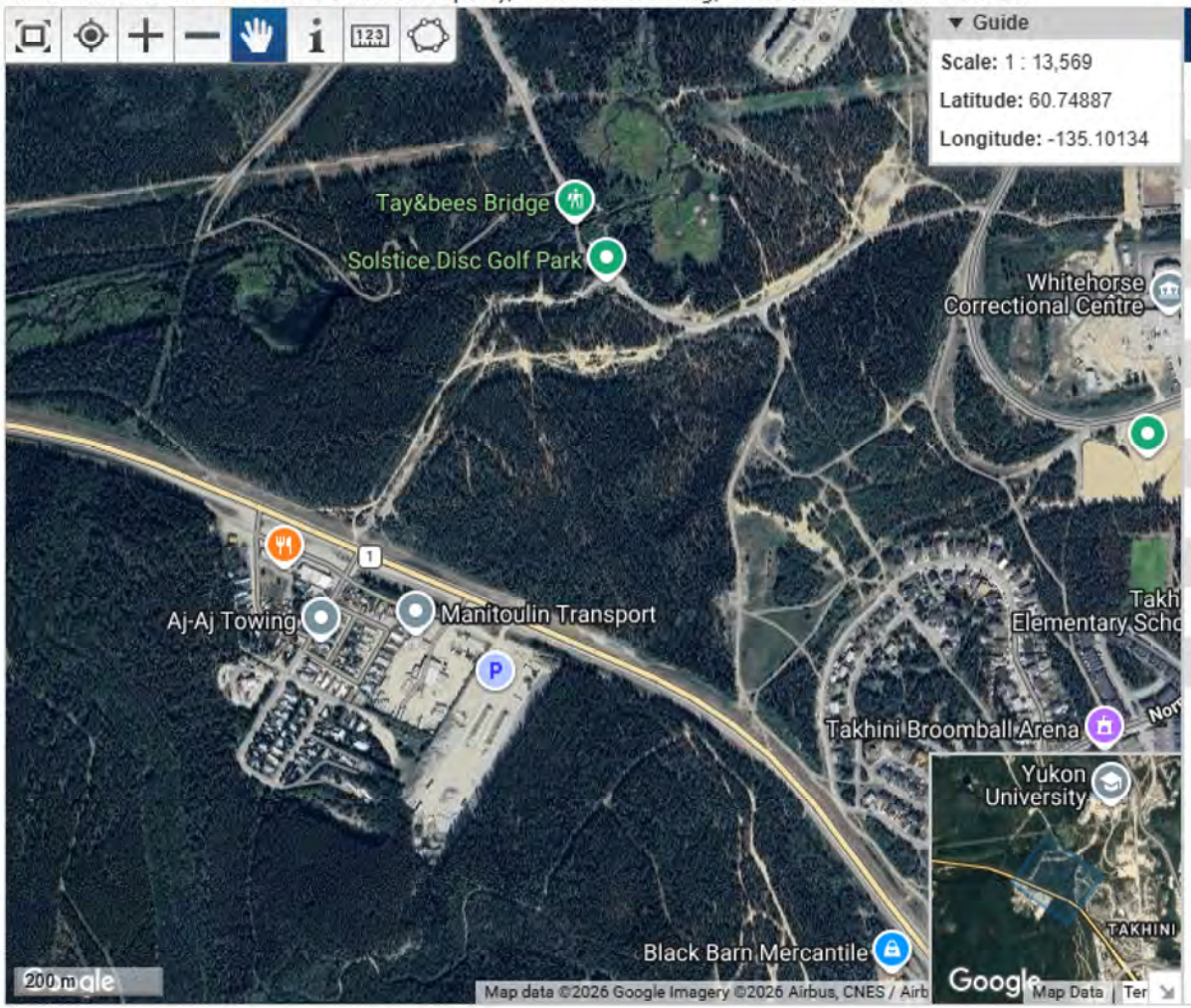
10. Provide an appropriate location to examine the requested information/personal information.

APPENDIX H

FEDERAL CONTAMINATED SITES INVENTORY RESULTS

DFRP/FCSI - Map Navigator

Area: Whitehorse **Content:** 0 Federal Property, 0 Federal Building, 0 Federal Contaminated Site



Layers | Search | Information

Control layers and labels visibility with the checkboxes. Control the base map with the select list. Actions will automatically update the map.

	Visibility	Labels
Federal Properties	☐	☐
Federal Buildings	☐	☐
Active Federal Contaminated Sites	☑ [1]	☑
Suspected Federal Contaminated Sites	☑ [1]	☑
Closed Federal Contaminated Sites	☑ [1]	☑
Economic Region	☐	☐
Census Divisions	☐	☐
Census Subdivisions	☐	☐
Metropolitan Areas	☐	☐
Federal Electoral Districts	☐	☐
Treaty Areas	☐	☐

Base map: Google Hybrid [2]

[1] Suspected Active Closed

[2] Google base maps are only available when the map scale is smaller than 1:60,000.

APPENDIX I

TETRA TECH'S LETTER OF RELIANCE POLICY

A Letter of Reliance is a document provided by Tetra Tech to confirm and extend reliance on an Environmental Site Assessment (ESA) report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided below.

- Written permission from the original client must be provided to Tetra Tech before a Letter of Reliance will be prepared. A Letter of Reliance will only be provided to a specific Third Party (e.g. no "open" Letter of Reliance will be issued) and will not be issued to a Third Party more than twice removed (e.g., seller is original client and Letter of Reliance is provided to the lender of the buyer). The format and content of the letter will be determined exclusively at the discretion of Tetra Tech.
- A Letter of Reliance will only be provided for ESA reports issued in the last year (365 days). After this period a new evaluation must be undertaken, and a new or updated report produced at the client's or third party's expense.
- A minimum $500 fee will be charged for each Letter of Reliance. This amount may be increased based on the potential liability and complexity associated with the site and investigation. This fee along with any outstanding charges must be paid in full prior to issuing the Letter of Reliance.
- The Letter of Reliance will be subject to Tetra Tech's standard terms and conditions and limitation of liability (for damages) will be limited to the same dollar amount outlined in the executed Service Agreement.

Non-standard terms and conditions for the Letter of Reliance should be presented to the Tetra Tech Project Manager for consideration prior to the commencement of the ESA. An example Letter of Reliance can be provided at the client's request.

Notwithstanding any of the conditions above, Tetra Tech may, at its sole discretion and without providing justification, refuse to provide a Letter of Reliance.

Phase I Environmental Site Assessment
Unsurveyed Land across Canada Games Centre
Whitehorse, Yukon



PRESENTED TO

Kobayashi + Zedda Architects

MARCH 30, 2026
ISSUED FOR REVIEW
704-ENG.WARC04470-03

This "Issued for Review" document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an "Issued for Use" document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the "Issued for Review" document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

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

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for the unsurveyed Yukon Government (YG) lot located at 60°43'46.38"N and 135°05'47.48"W, across from the Canada Games Centre (CGC) in Whitehorse, Yukon (herein referred to as the “Property”). The Property has no legal description, as it is unsurveyed and not titled.

Phase I ESA Findings

Based on the findings of this Phase I ESA, the Property is undeveloped and remains predominantly forested, with pedestrian trails providing access from the Valleyview residential area to CGC. No buildings, paved surfaces, or evidence of chemical or waste storage were observed during the site visit conducted by Tetra Tech on March 17, 2026. No above-ground storage tanks (ASTs) or under-ground storage tanks (USTs) were observed during the site visit.

Historical aerial imagery from 1963 to 2024 indicates the Property has remained largely forested, with only minor changes for access and recreational use. The Property is relatively flat. Publicly visible surrounding land uses within 200 m comprise a mix of parks and recreation, residential, institutional, and highway commercial uses. Yukon Archives and public record searches produced no reports specific to the Property, and a Land Titles Branch search indicates the parcel is unsurveyed and untitled and is administered, not owned, by the Yukon Government Land Development Branch.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no area of potential environmental concern (APEC) was identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows:

- Historical Irregular Waste Disposal

Tetra Tech does not recommend further investigation for the Property at this time.

A chance find procedure should be implemented during earth works based on the historical irregular waste disposal that occurred in the Property vicinity.

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LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Kobayashi + Zedda Architects and their agents. Tetra Tech Canada Inc. (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 Kobayashi + Zedda Architects, or for any Project other than the proposed development at the subject Property. 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 Appendix A or Contractual Terms and Conditions executed by both parties.

LETTER OF RELIANCE POLICY

A Letter of Reliance is a document provided by Tetra Tech Canada Inc. to confirm and extend reliance on an Environmental Site Assessment report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided in Appendix I.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) to conduct a Phase I Environmental Site Assessment (Phase I ESA) for the unsurveyed Yukon Government (YG) lot located at 60°43'46.38"N and 135°05'47.48"W, across from the Canada Games Centre (CGC) in Whitehorse, Yukon (herein referred to as the "Property"). The Property has no legal description, as it is unsurveyed and not titled.

Tetra Tech understands the Phase I ESA is being undertaken to assess three proposed sites for a new Ecole Whitehorse Elementary School (EWES). This Phase I ESA was completed in general accordance with the methods outlined in the Canadian Standards Association (CSA) *Z768-01 Phase I Environmental Site Assessment,* published by the CSA (reaffirmed 2022).

The objective of a Phase I ESA is to assess a site for potential and existing environmental contamination liabilities, such as the potential presence of contaminants, hazardous materials, or waste materials of a deleterious nature. The present and past activities on the Property and at the surrounding sites were reviewed to establish the potential for significant adverse impacts (if any) on the environmental status of the Property. This review was limited to the activities presented in this report. Much of this review involved the interpretation of acquired historical documents and discussions with individuals with purported knowledge of the subject. Such sources of information are not exhaustive or reliable to any level of certainty. Moreover, while Tetra Tech is skilled at preparing the technical aspects of Phase I ESAs, we do not consider ourselves to be experts in assessing the reliability of witnesses or the accuracy, availability, completeness, or reliability of historical documents and information.

In our report, we refer to potential sources of contamination as 'issues'. Any issues that in our opinion have a moderate or high potential to result in soil and/or groundwater contamination are termed areas of potential environmental concern (APECs). The regulated chemicals associated with contamination sources in each APEC are termed potential contaminants of concern (PCOCs). If any APECs are identified in the Phase I ESA, a sampling investigation will be recommended to confirm the presence or absence of any PCOCs.

Tetra Tech received written authorization from Jack Kobyashi, Principal at KZA, to proceed with the Phase I ESA on March 3, 2026.

1.1 Scope of Services

The scope of services for the Phase I ESA included the following tasks:

- Review available previous environmental reports completed for the Property and/or for sites surrounding the Property (if any).
- Review historical records of site occupancy listed in archive and land title records and previous land uses as shown in aerial photographs.
- Review spill records, contaminated site records, and documentation of any environmental concerns maintained in Government of Yukon (YG) Environmental Programs Branch (EPB), Protective Services Branch (PSB), or Environment and Climate Change Canada (ECCC) records or obtained from a query of the Government of Canada Federal Contaminated Sites Inventory (FCSI).
- Conduct a visual review of the Property and adjacent sites to identify evidence and/or sources of possible contamination or environmental impairment, and to establish the presence and specific locations of critical features such as surface staining, waste dumped at the site and waste handling procedures, suspect imported fill materials, odours, condition of vegetation, storage areas for solvents or other chemicals, evidence of underground or above-ground storage tanks (USTs/ASTs), and other site observations.

- Interview persons with purported knowledge of past and present occupancy/activities on the Property and/or surrounding area.
- Review available published geological and hydrogeological information for the Property area.
- Comment on noise quality and nearby noise pollution sources.
- Prepare a Phase I ESA report to assess the likelihood of site contamination that may justify further investigation, and recommend any further work in this regard, if required.

1.2 Qualifications of Assessors

Keegan Kim, M.Sc. G.I.T., conducted the historical research, interviews, site reconnaissance and was the primary author of this report. Keegan has four years of experience in the environmental field in Canada.

Darren Thomas, B.A.Sc., P.Eng., conducted the peer review of the report. Darren is an Environmental Engineer with the Environment & Water Practice. He has 14 years of experience in the fields of environmental site assessment and remediation.

Paul Gardner, M.A.Sc., P.Eng., performed the Senior Review of this report. Paul is a Senior Contaminated Sites Specialist with the Environment & Water Practice. Paul has over 20 years of progressive consulting experience in the fields of environmental site assessment and remediation.

2.0 PROJECT DESCRIPTION

2.1 Location, Current Legal Description and Ownership

The location of the Property is shown on Figure 1 and the approximate co-ordinates obtained from Google Earth are shown in Table 2-1 below.

Table 2-1: Approximate Global Position of the Property

Lot	Latitude	Longitude
Unsurveyed Land	60°43'46.38"N	135°05'47.48"W

The civic address, legal description, plan number, approximate size, and ownership of the Property are included in Table 2-2 below. A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. The results of this request are discussed further in Section 4.3, and the search results are included in Appendix B.

Table 2-2: Location, Size and Ownership

Civic Address	Legal Description	Approximate Size (m^2)	Owner
N/A	Unsurveyed land with no legal description	17205	Administered by Yukon Government's Land Development Branch

2.2 Zoning

The Property is zoned mostly PG (Greenbelt) with a small southeastern portion zoned PR (Parks and Recreation), per the City of Whitehorse (CoW) Zoning Bylaw 2012-20. The purpose of the PG land designation is to provide a zone for areas of public land that are typically left in a natural state and may be used primarily for buffers, walkways, trails and for unorganized or passive recreation. The purpose of the PR land designation is to provide areas for indoor and outdoor active recreational uses requiring facilities and/or infrastructure.

The principal land uses for PG and PR zoning include the following:

- Community gardens and greenhouses
- Nature interpretation facilities
- Beaches
- Parks
- Day-use areas

A copy of the CoW zoning map showing the designated uses for the Property and the surrounding sites is attached as Appendix C.

2.3 Potable Water Supply and Drinking Water Wells

Potable water is not currently supplied to the Property.

Tetra Tech conducted a search of the Canadian Groundwater Information Network (GIN) using their online mapping tool on March 12, 2026, to identify nearby water wells. According to the online mapping tool, there are five recorded water wells located within a 1.5 km search radius of the Property with none of the identified wells located on the Property. The locations relative to the Properties and the reported use of these wells is summarized in Table 2-3.

Table 2-3: Summary of Nearby Groundwater Wells from GIN

Groundwater Well	Distance and Direction from Property	Purpose
Well 204110165	510 m Southeast	Unknown
Well 204110166	670 m Southeast	Unknown
Well 204110198	810 m South	Water exploration test hole
Well 204110197	820 m South	Water exploration test hole
Well 204110167	890 m Southeast	Unknown

A copy of the GIN search results can be found in Appendix D.

2.4 Interviews

2.4.1 Erik Blake, Treasurer, Valleyview Community Association

Tetra Tech interviewed Erik Blake, Treasurer for the Valleyview Community Association, on March 26, 2026, via phone. Erik Blake has lived in the Valleyview residential area since 2001 and stated that the Property is primarily used as a community green space with trails for dog walking and access to the Canada Games Centre (CGC). Because the area south of the Valleyview community is blocked off as private land associated with the former Upper Tank Farm, and the areas east and north of the community consist mainly of a steep hillside leading to the Alaska Highway, the Property serves as an important community green space for local residents. Erik Blake also noted that the Property functions as a buffer zone between the Valleyview residential area and traffic on Hamilton Boulevard, helping reduce noise and dust (air quality concerns).

Erik Blake stated that he is not aware of any underground or aboveground storage tanks on the Property. He was aware of the remediated site listed in the YG EPB Spills and Contaminated Sites Registry and referred to an excavation that took place after an old drum was discovered near the Valleyview playground. However, he noted that the actual location of the excavation and the drum was farther south and closer to the Valleyview watermain (see Section 5.1.1).

Erik Blake also stated that he is not aware of any significant storage of chemicals or fuel products on the Property and has no knowledge of spills or stained areas. He reported no evidence of dumping, debris, major garbage, structures, or abandoned vehicles on the Property, which was consistent with observations made during the site visit (see Section 2.5.2). Erik Blake confirmed that the fencing present on the Property is associated with the softball field used by residents during the summer.

2.5 Current Property Facilities and Observations

Tetra Tech's representative, Keegan Kim, completed a site visit at the Property on March 17, 2026. The site visit involved visual observations of the Property surface for any stains or suspect materials on site, a visual review of accessible areas for the on-site outside areas, and an assessment of the current condition of vegetated areas on the Property. Snow cover during the site visit limited observations of surface conditions and access to some areas. Photographs taken during the site visit are presented in the Photos Section. Photos 1 through 9 show the Property, and photos 10 through 18 show the surrounding land use.

2.5.1 Property Layout

The Property is accessed by parking near the Valleyview Drive playground area and walking into the Property along existing trails. The unsurveyed Property is triangular in shape and is approximately 17,205 m² in area. No structures are present. Foot trails traverse the Property, connecting the Valleyview residential area to the CGC and Hamilton Boulevard (east-west). Several smaller walking trails are also present within the unsurveyed portion, running north–south. The Property layout is shown on Figure 2.

2.5.2 Property Structures

Other than a small section of abandoned fencing located in the southeastern corner of the Property adjacent to the Valleyview playground, no structures were observed. Tetra Tech presumes this fencing is associated with a historical sports field based on the review of aerial photographs (see Section 4.1).

2.5.3 Above-Ground or Underground Storage Tanks

Tetra Tech viewed the Property for any indications of ASTs and/or USTs, which could include suspect vent or filler pipes, fuel lines, stained areas, and evidence of stressed vegetation. No USTs or ASTs were identified during the site visit.

2.5.4 Chemical and Waste Storage and Disposal

No chemical or waste storage or disposal activities were observed on the Property.

2.5.5 Spills and Stained Areas

The Property was snow-covered during the site visit, limiting observations for spills or staining.

2.5.6 Fill Material

No suspected fill materials were observed on the Property during the site visit. However, snow cover limited the ability to fully assess surface soils. Based on the review of historical aerial photographs (see Section 4.1), there is no indication that fill was imported to the Property, which has remained predominantly forested for much of its history until its current configuration.

2.5.7 Property Drainage

The Property appears relatively flat. Due to snow cover at the time of the site visit, detailed observations of drainage patterns were limited; however, no indications of significant surface pooling were observed.

2.6 Surrounding Site Review

Publicly accessible or visible portions of adjacent sites within 200 m of the Property were viewed to assess their potential for environmental concerns that could impact the environmental integrity of the Property. Table 2-4 presents a summary of the observations of the surrounding sites and their orientation relative to the Property based on the inferred groundwater flow direction (east; see Section 3.3 and Figure 3). Figure 3 shows the location of the businesses relative to the Property.

Table 2-4: Surrounding Land Uses

Direction	Notes, Current Tenants & Environmental Observations within 200 m radius of Property
North (inferred cross-gradient)	**Developed, zoned Green Belt, Public Services, and Public Utilities** ▪ To the north of the Property lies developed sites and businesses including: – Hamilton Boulevard – Forested area – Yukon Weather Centre – Fire Marshalls Office
East (inferred down-gradient)	**Developed, zoned Residential Single Detached and Highway Commercial** ▪ To the east of the Property lies developed sites and businesses including: – Valleyview residential area – Klondike/Alaska Highway (across the highway are several commercial and light industrial businesses, located more than 500 m away)

Table 2-4: Surrounding Land Uses

Direction	Notes, Current Tenants & Environmental Observations within 200 m radius of Property
South (inferred cross-gradient)	**Developed, zoned First Nation, and Future Planning** ▪ To the south of the Property lies mostly undeveloped sites including: – Kwanlin Dün First Nation land (forested) – Future planning land (forested) – Sumanik Drive
West (inferred up-gradient)	**Developed, zoned Parks and Recreation, and Public Utilities** ▪ To the west of the Property lies developed sites and businesses including: – Hamilton Boulevard – Canada Games Centre (CGC) (with one propane AST) – Whitehorse Nordic Centre – Dirt and Soul Mountain Bike Park

3.0 NATURAL SETTING

3.1 Geological Information

The Bond, Morison, & McKenna terrain mapping (Whitehorse, 2005), shows the surficial geology for the Property area as being comprised of glaciofluvial deposits, which are sediments deposited by glacial meltwater streams either directly in front of, or in contact with, glacier ice. Glaciofluvial sediment typically ranges from non-sorted and non-bedded gravel composed of a wide range of particle sizes to stratified gravel; flow tills may also occur within some deposits. According to the Yukon Bedrock Geology Map, the bedrock in this area is composed of massive to thick bedded limestone, granodiorite, and quartz diorite.

3.2 Climate Records

Historical climate information for this region is based on data from Environment Canada collected at the Whitehorse Airport Weather Station.

Climate information was provided for the period between 1981 and 2010 (for snowfall and rainfall records) then 1981 and 2020 (latest available, for precipitation records). According to the information, the rainfall, precipitation, and snowfall records were as follows:

- Annual Rainfall: 160.9 mm
- Highest Monthly Rainfall: 38.1 mm (July)
- Annual Precipitation: 262.3 mm
- Highest Monthly Precipitation: 38.1 mm (July)
- Annual Snowfall: 141.8 cm
- Highest Monthly Snowfall: 27.0 cm (November)

A copy of the historical climate information is provided in Appendix E.

3.3 Hydrogeology

Based on Tetra Tech's experience in the regional area, the depth to groundwater is unknown but expected to be deeper than 3.0 m below ground surface (bgs) and to flow in a generally east direction towards the Yukon River. However, due to the complex history and nature of the underlying materials, actual groundwater flow on the Property and surrounding sites may vary.

3.4 Surface Waterbodies

No waterbodies either pass through or are located immediately adjacent to the Property. The nearest surface waterbodies are Yukon River approximately 1.6 km to the east.

4.0 HISTORICAL RECORDS

Tetra Tech conducted a historical review of the Property and surrounding sites using available aerial photographs, Google Earth satellite images, and Yukon Archive documents. This section summarizes the historical review findings for the Property and the surrounding sites.

4.1 Aerial Photos and Satellite Imagery

Aerial images from 1963, 1976, 1985, 1989, 2001, 2006, 2014, 2019, and 2024 are included as Figure 4 (a to i). Table 4-1 presents a discussion of the development of and changes to the Property and surrounding area based on these images.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1963	**Property:** The Property is mostly forested, and an access road can be seen cutting across the centre of the site. A minor cleared section is visible in the southeastern corner, which may have been used as a sports field associated with the adjacent Valleyview playground and ice rink. **Surrounding Sites:** Residential units are visible along Valleyview Drive to the east of the Property. Sites to the north and east are mostly developed, with some materials stored in the yard to the north. The Alaska Highway is visible to the east. Whitehorse Upper tank farm can be seen near the southern edge of the air photo.
1976	**Property:** An access road has been constructed along the southern boundary of the Property, presumably to support development to the west. An additional access road extends north–south through the Property. **Surrounding Sites:** The Alaska Highway to the east appears to have undergone modifications. Stored materials in the northern yard have been removed, and the area appears to be reforesting. Additional forest clearing is visible west of the Property.
1985	**Property:** The Property remains largely unchanged. **Surrounding Sites:** Hamilton Boulevard has been constructed to the west of the Property, and the present-day CGC area is being developed, with several structures already present. Increased industrial development is visible east of the Property across the Alaska Highway.

Table 4-1: Summary of Historical Aerial Photo Review for the Property and Surrounding Sites

Year	Description
1989	**Property:** The Property remains largely unchanged. **Surrounding Sites:** The present-day Whitehorse Nordic Centre building is visible west of the Property across Hamilton Boulevard. The present-day Canada Post building has been constructed north of the Property.
2001	**Property:** The Property remains largely unchanged. **Surrounding Sites:** Construction for the CGC is visible northwest of the Property. Tennis courts have been built west of the Property near the Whitehorse Nordic Centre. Sumanik Drive has been constructed south of the Property.
2006	**Property:** The Property remains largely unchanged. **Surrounding Sites:** The CGC and its parking lot have been completed west of the Property. Other surrounding sites remain largely unchanged.
2014	**Property:** The Property appears to remain largely unchanged. **Surrounding Sites:** Surrounding sites remain largely unchanged.
2019	**Property:** The Property appears to remain largely unchanged. **Surrounding Sites:** The Whitehorse Operations building has been developed east of the Property across the Alaska Highway.
2024	**Property:** The Property appears to remain largely unchanged and is in its current configuration. **Surrounding Sites:** Surrounding sites also remain largely unchanged and are in their current configuration.

4.2 Yukon Archives

On March 18, 2026, Tetra Tech visited the online Yukon Archives database and the physical database inventory (provided to Tetra Tech by the Yukon Archives in August 2020) to review archival records pertaining to the Property and the surrounding area, including the Upper Tank Farm, the Canol pipeline, and the military use of the Property areas. This search produced no materials directly pertaining to the Property.

There were no military records associated with the Property. The reviewed Canol pipeline records did not show infrastructure in the immediate vicinity of the Property. The main pipeline connected to the Tank Farm ran toward the Marwell Tar Pits along Two Mile Hill, and the associated structures used in the operation of the Upper Tank Farm are more than 500 m from the Property, as shown in the air photo review in Section 4.1.

4.3 Land Titles Office

A land titles search (historic to present) was requested from the Yukon Government Land Titles Branch on March 5, 2026, and a response was received on March 6, 2026. Response correspondence between Tetra Tech, the Land Titles Branch, and the Land Development Branch is included in Appendix B.

According to the Land Titles Branch, the Property is unsurveyed, and because no survey plan has been registered, the parcel is not titled. As a result, no ownership information exists in the Land Titles system. For further clarification, the Branch referred Tetra Tech to the Yukon Government Land Management Branch.

According to Justine Scheck, Special Projects Advisor, untitled parcels are not considered “owned” by the Yukon Government until a title is issued. Most YG properties with existing assets are titled and held by the Commissioner of Yukon. Untitled land—whether surveyed or unsurveyed—is under Yukon Government administration and control under the *Yukon Lands Act* or the *Territorial Lands (Yukon) Act*, which differs from formal ownership. Public/Yukon land includes untitled parcels such as the Property.

The Yukon Government Land Development Branch administers the Property, but it does not own it, as unsurveyed and untitled land has no formal title holder.

4.4 Historical Reports

The following sections summarize available historical reports relating to the Property and the surrounding area outside of the regulatory records databases (summarized in Section 5.0).

4.4.1 Reports Relating to the Property

Tetra Tech conducted a search of the publicly available records pertaining to the Property. Tetra Tech reviewed the Valleyview South Master Plan (Groundswell Planning, 2024). The Master Plan outlines the City of Whitehorse’s long term vision for transforming the Valleyview South area into a mixed-use residential neighborhood. Its content was informed by reviews of existing City planning documents, technical studies, community and stakeholder engagement, and site-specific land use analyses.

The Master Plan proposes a diverse mix of housing types and public spaces throughout Valleyview South, supported by new transportation connections such as upgrades at Range Road, a multi-use trail along Sumanik Drive, and an expanded pathway network. Approximately 1,700 new residential units are envisioned, alongside an urban centre near Hamilton Boulevard and the Canada Games Centre. The Plan emphasizes integrating new development with existing neighborhoods while addressing infrastructure needs, safe access, and long-term sustainability.

As contextual information, the Master Plan also describes the historic Whitehorse Upper Tank Farm, located more than 500 m south of the Property. The Whitehorse Upper Tank Farm (WUTF) operated from the 1940s through the 1990s as a petroleum storage and pipeline facility associated with the former Canol Project. Environmental investigations and a Plan of Restoration were carried out after facility decommissioning, with Certificates of Compliance issued for portions of the site in 2015 and 2020. Some areas of the former WUTF lands still contain deeper subsurface hydrocarbon contamination requiring ongoing management under Yukon’s Contaminated Sites Regulation. These historic industrial features and residual conditions are located more than 500 m south of the Property, geographically separate from the Valleyview South development area and unrelated to activities within the Property boundary. Historical activities at the WUTF are not likely to have affected the Property.

4.4.2 Reports Relating to the Surrounding Area

Tetra Tech conducted a search of the publicly available records pertaining to the immediate surrounding area. There were no reports or records available.

5.0 REGULATORY RECORDS

The regulatory records review is described in the following subsections.

5.1 Government of Yukon

5.1.1 Environmental Programs Branch, Spills and Contaminated Sites Registry

On March 5, 2026, Tetra Tech completed a search of the YG EPB Spills and Contaminated Sites Registry for all documented spills and registered sites within a 200 m radius of the Property. The Spills and Contaminated Sites Registry documents milestones in the identification and cleanup process of a site. The site registry contains information on sites that have been investigated and remediated in the Yukon since 2001. The YG EPB search results are attached in Appendix F.

A lack of information on a particular site does not indicate an absence of contamination, but only an absence of YG EPB documentation. The search identified one remediated site. A summary of this site is provided in Table 5-1 below.

Table 5-1: Summary of Contaminated Sites/Unknown Sites

Location	Distance and Direction from Property	YG EPB Status	Report summary	Potential for Impact to the Property
Valleyview playground	80 m East (Down-gradient)	Remediated	In October 2010, an oil drum suspected to have been from the WWII-era was discovered, half-buried in the ground. During removal, it was discovered that the bottom half of the drum was no longer there and the waste oil had drained into the surrounding soil at some point in the past few decades. The area surrounding the drum was then excavated and ~110 m^3 of soil contaminated with PHCs was removed. Confirmatory sampling indicated that contamination remained on the east, north, and south side of the excavation. Further excavation was conducted in 2011 to delineate the contamination on the N, E, and S walls. Confirmatory soil samples indicated that PHC contamination remained on the eastern wall but north and south walls were found to be below the applicable standard. An excavation conducted in 2012 showed the eastern wall was below the applicable standard.	This site is considered hydraulically down-gradient from the Property. Confirmatory soil sampling were below applicable standards, and the site status is classified as remediated. Given its remediated status and down-gradient position, this site is inferred to pose little to no environmental concern to the Property.

5.1.2 Protective Services Yukon

Since 1998, YG PSB has maintained a registry of storage tanks on commercial properties. The registry includes records for permits that were issued for AST and UST installations, removals, and maintenance work on tanks with volumes over 4,000 L.

Upon review of the registry, Tetra Tech did not identify any permits for tank installations or removals; however, this does not preclude the possibility of undeclared or unregistered storage tanks.

5.2 Government of Canada

5.2.1 Environment and Climate Change Canada Spills and Contaminated Sites Registry

Tetra Tech requested a search of the Environment and Climate Change Canada (ECCC) Spills and Registry and contaminated sites records on March 10, 2026, to determine if there have been any documented spills or records of contaminated land on the Property, historical to present. Tetra Tech had not received the results from ECCC at the time of this report. Once the results have been received, if the findings change the outcome of this report, an addendum to this report will be issued. A copy of the ECCC search request can be found in Appendix G.

5.2.2 Federal Contaminated Sites Inventory

The Government of Canada maintains the FCSI database that contains environmental information pertaining to federally-regulated contaminated or potentially contaminated sites. The inventory also includes non-federally regulated contaminated sites for which the Government of Canada has accepted some or all financial responsibility. The FCSI is not a registry solely of contaminated sites. Some sites in the registry are characterized to have soil and groundwater exceeding the applicable standards, but most are simply being investigated and require little, if any, cleanup or they have already been cleaned up to applicable standards. A lack of information on a particular site does not indicate an absence of contamination, but only an absence of documentation in the FCSI.

Tetra Tech conducted an area search using this online database for registered sites within 300 m of the Property on March 10, 2026, and identified two suspected sites located across the Hamilton Boulevard, adjacent to Canada Games Centre.

Site 00027522, "*Yukon Weather Centre*", is situated approximately 250 m northwest of the Property. The site status is listed as suspected, with "Identify Suspect Sites" recorded as the highest step completed from 2016 – 2025. No financial expenditures from 2016–2025 were reported in the registry.

Site 0027523, "*Combined Services Building, Whitehorse*", is situated approximately 150 m west of the Property. The site status is listed as suspected, with "Identify Suspect Sites" listed as highest step completed from 2016-2025. No financial expenditures from 2016-2025 were reported in the registry.

Based on the inferred groundwater flow direction (east to northeast), Site 00027522 is located cross- to down-gradient of the Property, and Site 00027523 is potentially up-gradient of the Property. However, both sites are a significant distance away and are separated from the Property by Hamilton Boulevard. Moreover, the suspected status of both sites, combined with the absence of reported financial expenditures from 2016–2025, suggests a low likelihood of impacts to the Property. A copy of the FCSI site registry search results is provided in Appendix H.

6.0 DISCUSSION

The following section discusses the findings of the Phase I ESA. Activities with the potential to be sources of contamination are termed “issues.” Any issues that present a moderate or high potential for causing soil and/or groundwater contamination on the Property are termed APECs.

During the Phase I ESA, no APEC and one low potential environmental issue were identified for the Property. The environmental issues along with the associated rationale are outlined in the following Table 6-1.

Table 6-1: Low Potential Environmental Issue Rationale

Low Potential Environmental Issue Contaminant Sources	Rationale
Historical Irregular Waste Disposal	▪ According to the YG EPB Spills and Contaminated Sites Registry, Valleyview Playground site, located 80 m east of the Property, an old drum dating back to the WWII era was discovered in 2010. The site is considered remediated, as confirmatory soil sampling results were below applicable standards, and it is inferred to be down-gradient from the Property. ▪ Given the remediated status and the absence of any additional contamination reported in available records, Tetra Tech assesses the potential for historical irregular waste disposal as low risk. Because historical irregular waste disposal cannot be entirely ruled out in the area, future excavations should proceed with caution and be prepared to manage any unexpected discoveries.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this Phase I ESA, the Property is essentially undeveloped and remains predominantly forested, with pedestrian trails providing access from the Valleyview residential area to the Canada Games Centre (CGC). No buildings, paved surfaces, or evidence of chemical or waste storage were observed during the site visit conducted by Tetra Tech on March 17, 2026. No ASTs or USTs were observed during the site visit.

Historical aerial imagery from 1963 to 2024 indicates the Property has remained largely forested, with only minor changes for access and recreational use. The Property is relatively flat. Publicly visible surrounding land uses within 200 m comprise a mix of parks and recreation, residential, institutional, and highway commercial uses. Yukon Archives and public record searches produced no reports specific to the Property, and a Land Titles Branch search indicates the parcel is unsurveyed and untitled and is administered, not owned, by the Yukon Government Land Development Branch.

During the preparation of this Phase I ESA, Tetra Tech reviewed the information to assess the present conditions and historical site activities at the Property and at adjacent sites in the context of evaluating potential environmental concerns. Based on the findings described in this Phase I ESA, no APEC was identified for the Property.

Based on the findings described in this Phase I ESA, one low risk environmental concern was identified, as follows:

- Historical Irregular Waste Disposal

Tetra Tech does not recommend further investigation for the Property at this time.

A chance find procedure should be implemented during earth works based on the historical irregular waste disposal that occurred in the Property vicinity.

8.0 CLOSURE

Conclusions and recommendations presented herein are based on a visual site inspection, discussion with personnel and historical information that was reviewed at the time of this investigation. This report has been prepared based on the scope of work approved by, and for the use of, Kobayashi + Zedda Architects, which includes distribution as required for the purposes for which this assessment was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. No other warranty is made, either express or implied. Professional judgment has been applied in developing the recommendations in this report.

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

Respectfully submitted,
Tetra Tech Canada Inc.

ISSUED FOR REVIEW

704-ENG.WARC04470-03
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704-ENG.WARC04470-03

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704-ENG.WARC04470-03
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704-ENG.WARC04470-03
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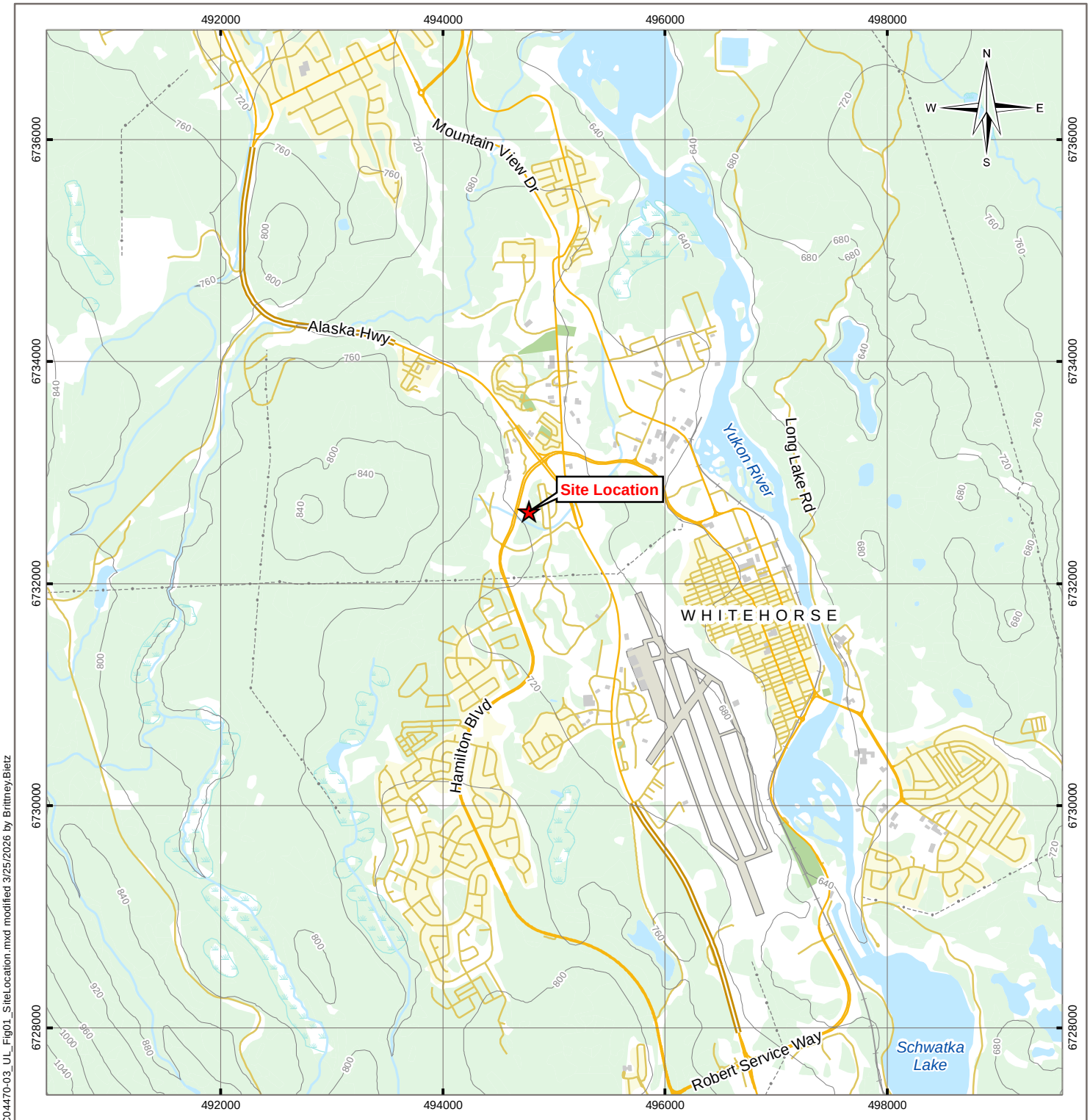
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FIGURES

Figure 1 Site Location
Figure 2 Property Plan
Figure 3 Surrounding Land Use Plan
Figure 4a-4i Historical Aerial Imagery



LEGEND

- Site Location
- Highway
- Main Road
- Local Road
- Resource/Recreational Road
- Railway
- Power Line
- Runway
- Building
- Park
- Residential Area
- Contour (40 m)
- Watercourse
- Waterbody
- Wetland
- Wooded Area

NOTES
Base data source: CanVec 1:50,000.

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Site Location

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:50,000
1 0.5 0 1
Kilometres

TETRA TECH

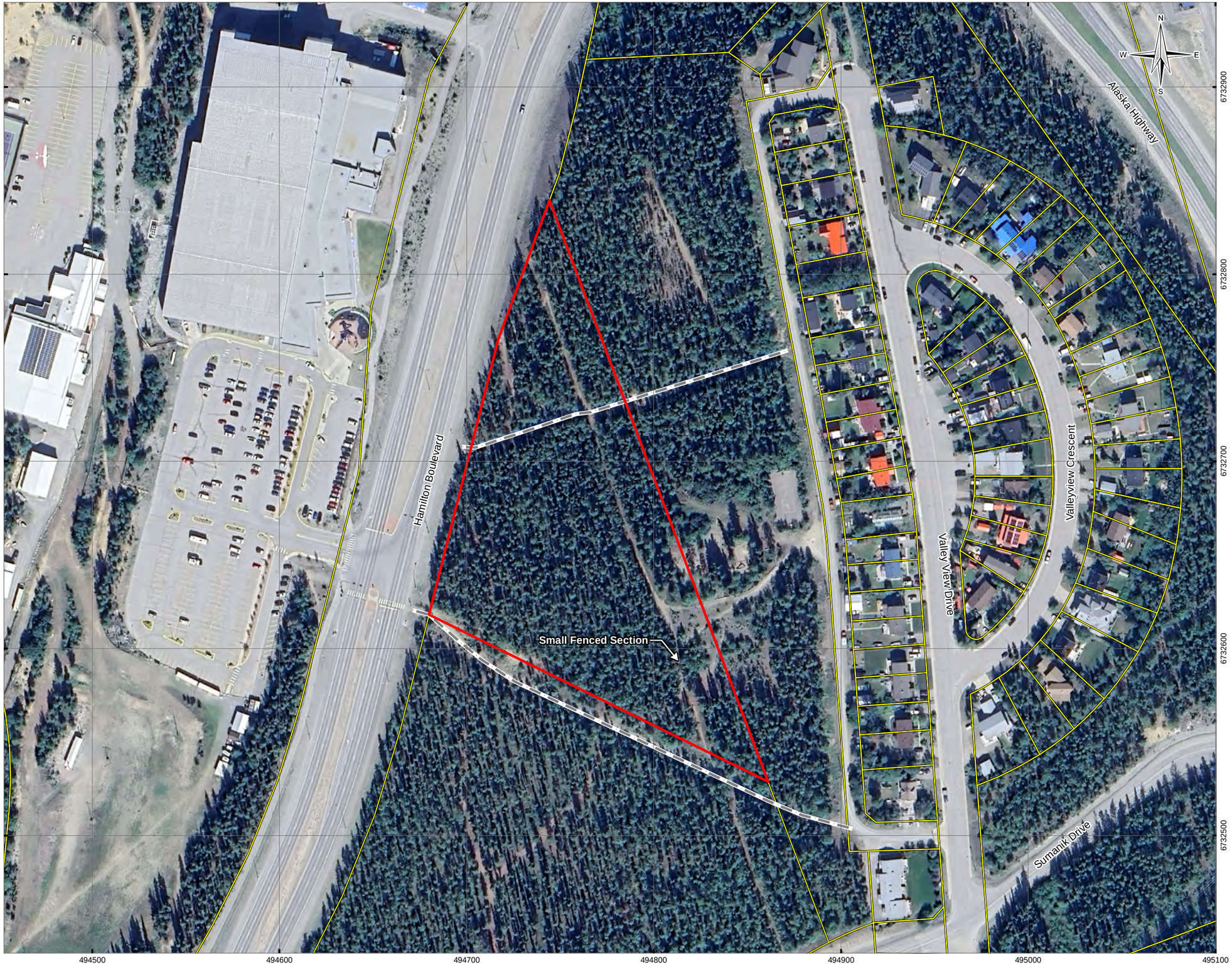
FILE NO. WARC04470-03_UL_Fig01_SiteLocation.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	SL	KK	0

DATE March 25, 2026
PROJECT NO. ENG.WARC04470-03

Figure 1

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LEGEND

- Pedestrian Trail
- Site Boundary
- Parcel Boundary

NOTES
Base data source:
Parcel data: Government of Yukon
Imagery: Google Earth (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Property Plan

PROJECTION UTM Zone 8		**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:2,000 — 40 20 0 40 — Metres					TETRA TECH
FILE NO. WARC04470-03_UL_Fig02_PropertyPlan.mxd					
OFFICE Tt-VANC	**DWN** BB	**CKD** SL	**APVD** KK	**REV** 0	**Figure 2**
DATE March 25, 2026	**PROJECT NO.** ENG.WARC04470-03				

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LEGEND

- Contaminated Site
- Site Boundary
- Parcel Boundary
- Inferred Groundwater Flow Direction

Zoning Description

- Future Planning (FN-FP)
- Greenbelt (PG)
- Highway Commercial (CH)
- Parks and Recreation (PR)
- Public Services (PS)
- Public Utilities (PU)
- Residential Multiple Housing (RM)
- Residential Single Detached (RS)

NOTES

Base data source:
Parcel data: Government of Yukon
Zoning data: City of Whitehorse
Contaminated Sites: Federal Contaminated Sites Inventory
Site data, Government of Canada
Imagery: Google Earth (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Surrounding Land Use Plan

PROJECTION UTM Zone 8	**DATUM** NAD83	**CLIENT** Kobayashi + Zedda Architects	
Scale: 1:2,700 (50 25 0 50 Metres)		TETRA TECH	
FILE NO. WARC04470-03_UL_Fig03_SLUP.mxd			
OFFICE Tt-VANC	**DWN** BB / **CKD** SL / **APVD** KK / **REV** 0		Figure 3
DATE March 27, 2026	**PROJECT NO.** ENG.WARC04470-03		



LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1963)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
UNSURVEYED LAND
WHITEHORSE, YUKON

Historical Aerial Imagery 1963

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:5,000

100 50 0 100

Metres

TETRA TECH

FILE NO.
WARC04470-03_UL_Fig04_Historical.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	MRB	KK	0

DATE
March 6, 2026

PROJECT NO.
ENG.WARC04470-03

Figure 4a

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Natural Resources Canada (1976)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 1976

PROJECTION UTM Zone 8	**DATUM** NAD83		**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 — 100 50 0 100 Metres			TETRA TECH
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd			
OFFICE Tt-VANC	**DWN** BB / **CKD** MRB / **APVD** KK / **REV** 0		Figure 4b
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03		

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1985)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
UNSURVEYED LAND
WHITEHORSE, YUKON

Historical Aerial Imagery 1985

PROJECTION UTM Zone 8		**DATUM** NAD83		**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres				TETRA TECH
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd				
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03			**Figure 4c**

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (1989)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT
UNSURVEYED LAND
WHITEHORSE, YUKON

Historical Aerial Imagery 1989

PROJECTION	DATUM	CLIENT
UTM Zone 8	NAD83	Kobayashi + Zedda Architects

Scale: 1:5,000
100 50 0 100
Metres

TETRA TECH

FILE NO.
WARC04470-03_UL_Fig04_Historical.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	BB	MRB	KK	0

DATE
March 6, 2026

PROJECT NO.
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Figure 4d

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LEGEND

Site Boundary

NOTES
Base imagery source: Department of Energy, Mines and Resources (2001)

STATUS
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PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 2001

PROJECTION UTM Zone 8	**DATUM** NAD83	**CLIENT** Kobayashi + Zedda Architects	
Scale: 1:5,000 — 100 50 0 100 — Metres			
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd		TETRA TECH	
OFFICE Tt-VANC	**DWN** BB / **CKD** MRB / **APVD** KK / **REV** 0	Figure 4e	
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03		

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LEGEND

Site Boundary

NOTES
Base imagery source: GeoYukon (2006)

STATUS
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PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 2006

PROJECTION UTM Zone 8	**DATUM** NAD83			**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 — 100 50 0 100 — Metres				TETRA TECH
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd				
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03			**Figure 4f**

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LEGEND

Site Boundary

NOTES
Base imagery source: GeoYukon (2014)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 2014

PROJECTION UTM Zone 8		**DATUM** NAD83		**CLIENT** Kobayashi + Zedda Architects
Scale: 1:5,000 100 50 0 100 Metres				TETRA TECH
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd				
OFFICE Tt-VANC	**DWN** BB	**CKD** MRB	**APVD** KK	**REV** 0
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03			**Figure 4g**

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LEGEND

Site Boundary

NOTES
Base imagery source: GeoYukon (2019)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 2019

PROJECTION UTM Zone 8	**DATUM** NAD83	**CLIENT** Kobayashi + Zedda Architects	
Scale: 1:5,000 (100 50 0 100 Metres)			
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd		TETRA TECH	
OFFICE Tt-VANC	**DWN** BB / **CKD** MRB / **APVD** KK / **REV** 0		Figure 4h
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03		

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LEGEND

Site Boundary

NOTES
Base imagery source: ESRI, Vantor (2024)

STATUS
ISSUED FOR REVIEW

PHASE I ENVIRONMENTAL SITE ASSESSMENT UNSURVEYED LAND WHITEHORSE, YUKON

Historical Aerial Imagery 2024

PROJECTION UTM Zone 8	**DATUM** NAD83	**CLIENT** Kobayashi + Zedda Architects	
Scale: 1:5,000 — 100 50 0 100 Metres		TETRA TECH	
FILE NO. WARC04470-03_UL_Fig04_Historical.mxd			
OFFICE Tt-VANC	**DWN** BB / **CKD** MRB / **APVD** KK / **REV** 0	Figure 4i	
DATE March 6, 2026	**PROJECT NO.** ENG.WARC04470-03		

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PHOTOGRAPHS

Site Photographs 1 – 18

Photo 1	View of the Property's eastern boundary.
Photo 2	View of the Property's northern corner.
Photo 3	View of the forested area near northern section of the Property.
Photo 4	View of the trial connecting the Valleyview residential area to the Canada Games Centre, running east-west through the central portion of the Property.
Photo 5	View of the trail in the western boundary of the Property.
Photo 6	View of the southwestern corner of the Property and the pedestrian crossing leading to the Canada Games Centre.
Photo 7	View of the Property's southern boundary.
Photo 8	View of the Property from its southeastern corner, looking northwest.
Photo 9	View of the small, fenced section adjacent to the Valleyview playground.
Photo 10	View of surrounding sites, garbage bin and parking area for the Valleyview playground.
Photo 11	View of surrounding sites, Valleyview residential area and Valleyview Drive.
Photo 12	View of surrounding sites, backroad for the Valleyview residential area.
Photo 13	View of surrounding sites, Valleyview community ice rink.
Photo 14	View of surrounding sites, Valleyview playground.
Photo 15	View of surrounding sites, Sumanik Drive.
Photo 16	View of surrounding sites, Hamilton Boulevard to the west of the Property.
Photo 17	View of surrounding sites, Canada Games Centre to the west of the Property.
Photo 18	View of the propane tank at the Canada Games Centre.

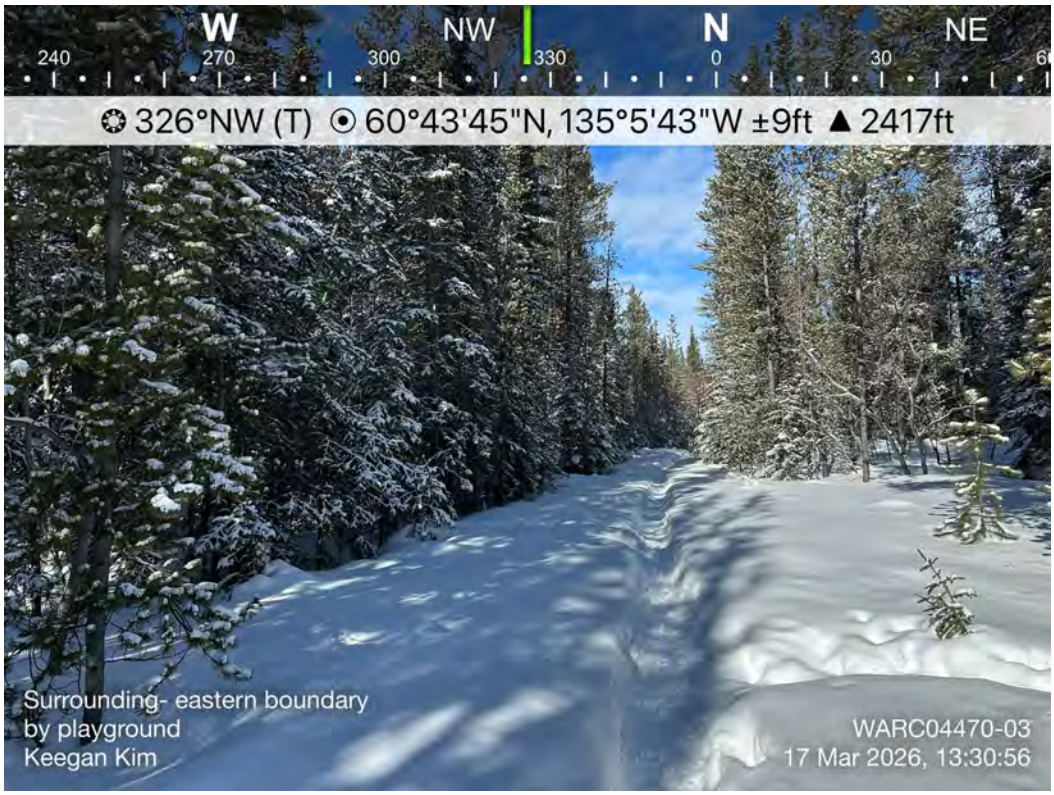


Photo 1: View of the Property's eastern boundary.



Photo 2: View of the Property's northern corner.

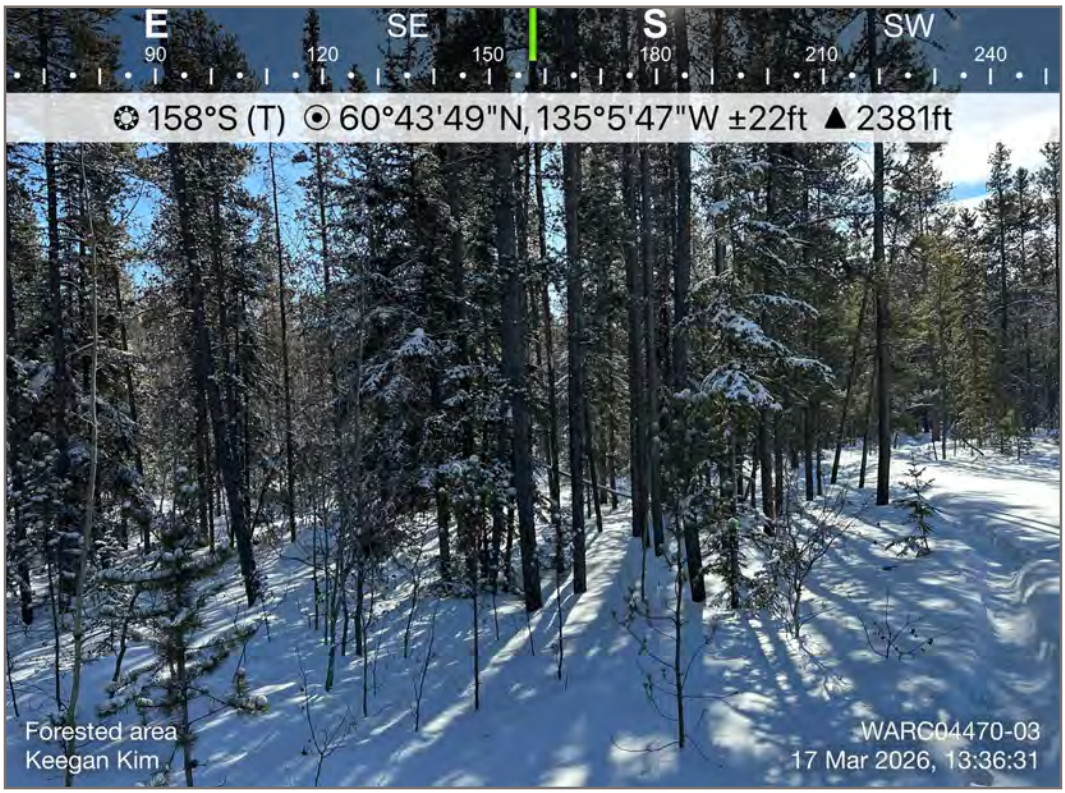


Photo 3: View of the forested area near northern section of the Property.

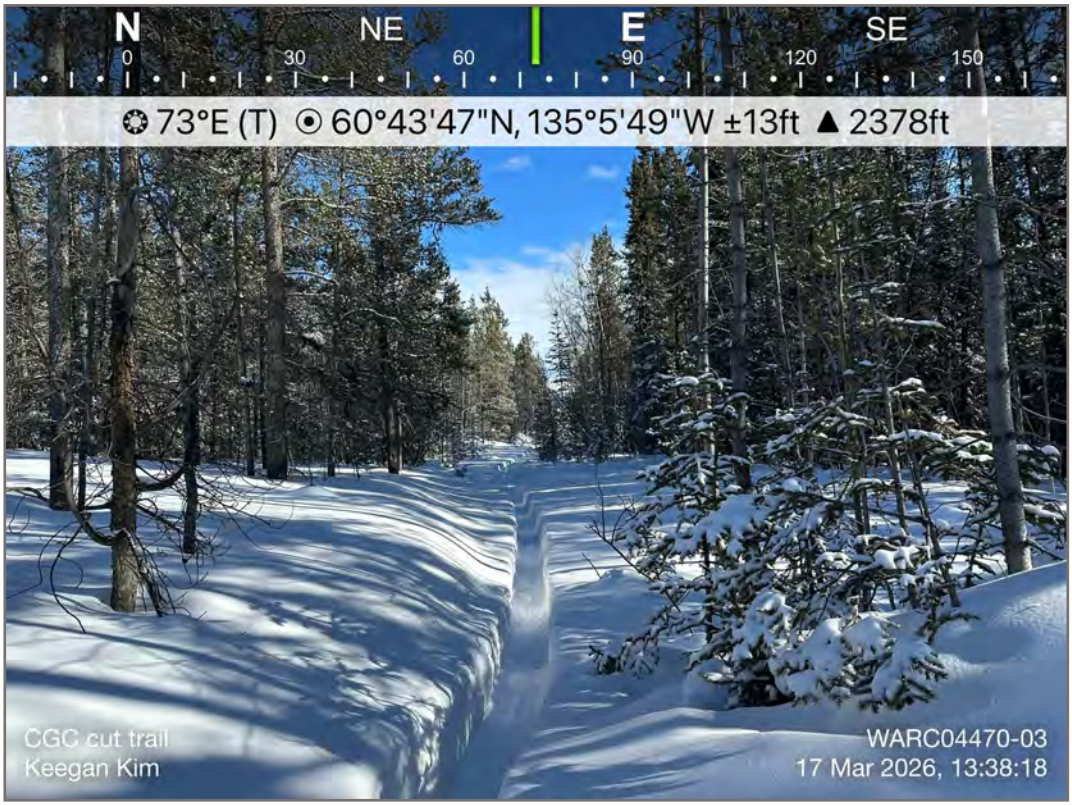


Photo 4: View of the trail connecting the Valleyview residential area to the Canada Games Centre, running east-west through the central portion of the Property.

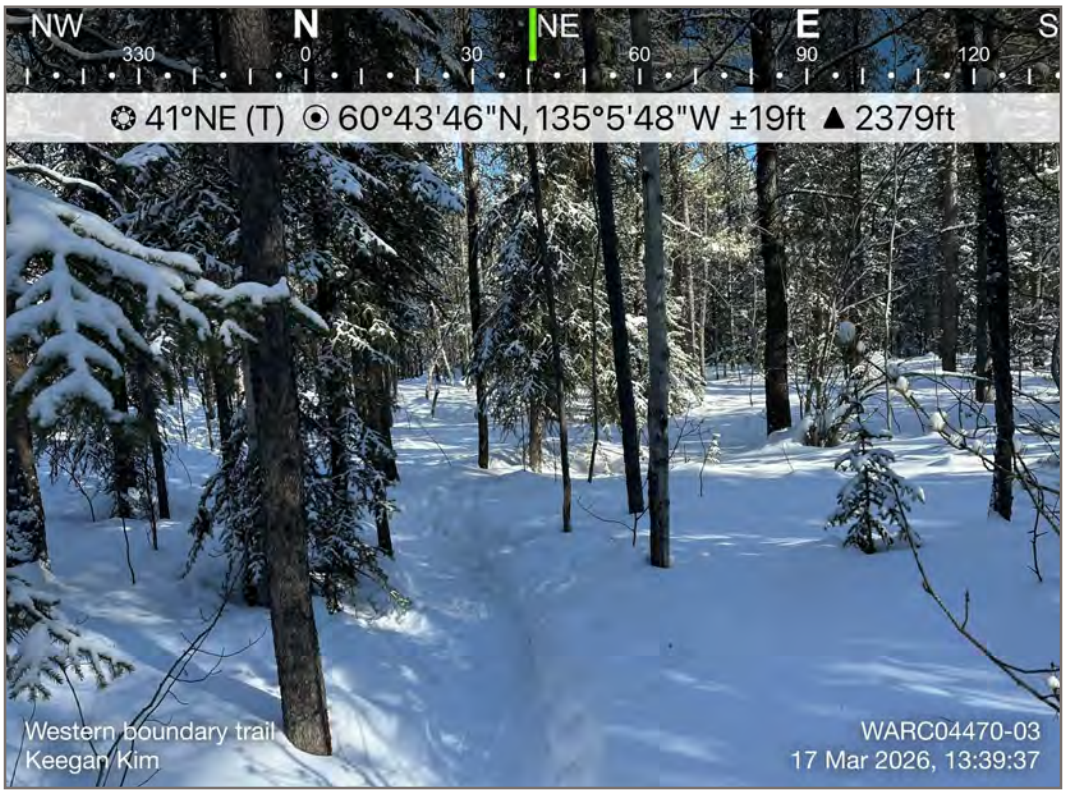


Photo 5: View of the trail in the western boundary of the Property.

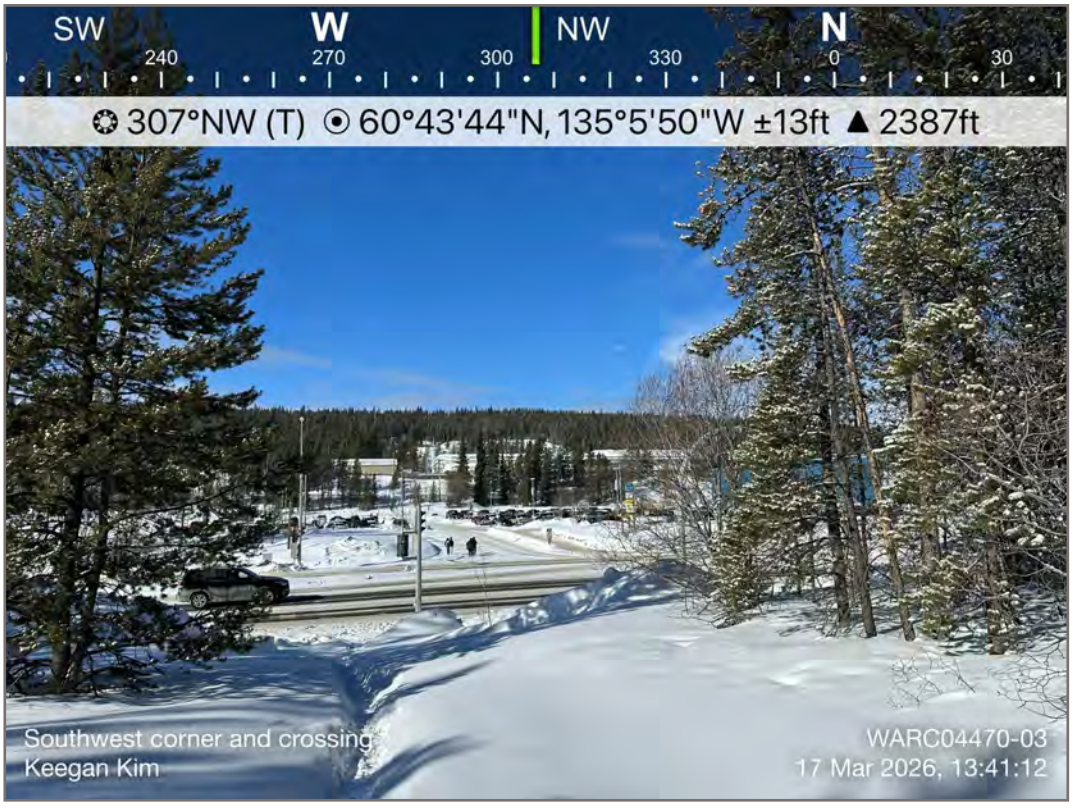


Photo 6: View of the southwestern corner of the Property and the pedestrian crossing leading to the Canada Games Centre.



Photo 7: View of the Property's southern boundary.

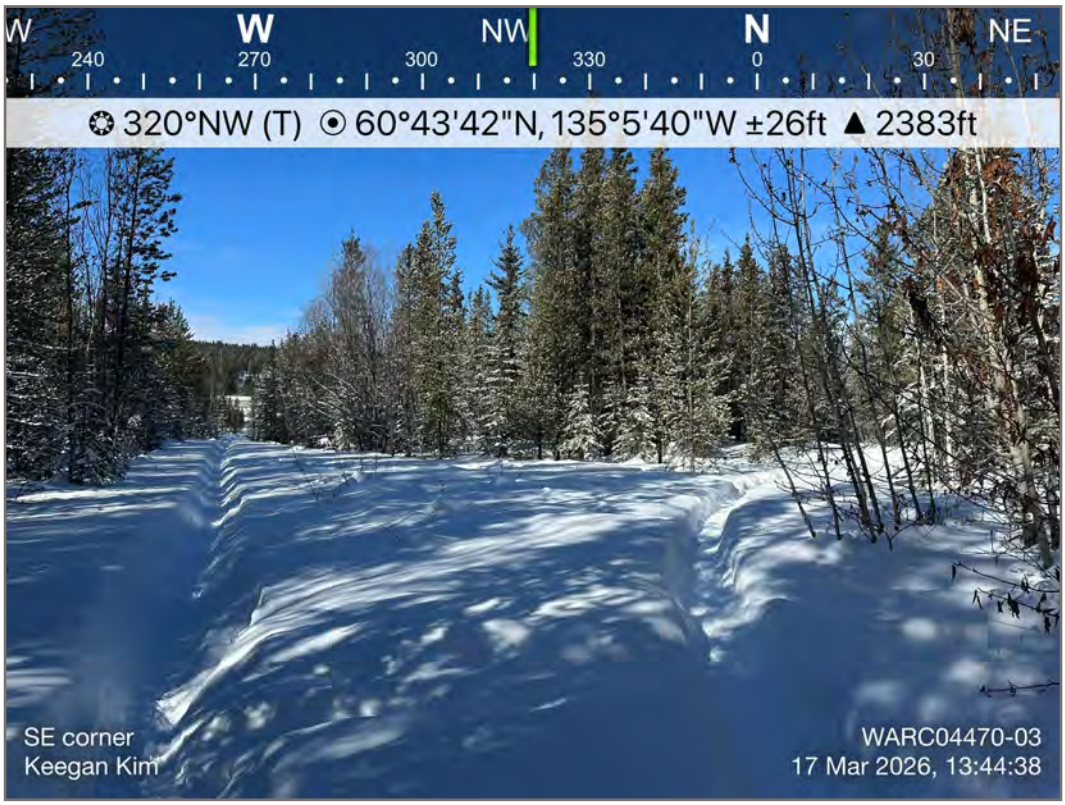


Photo 8: View of the Property from its southeastern corner, looking northwest.

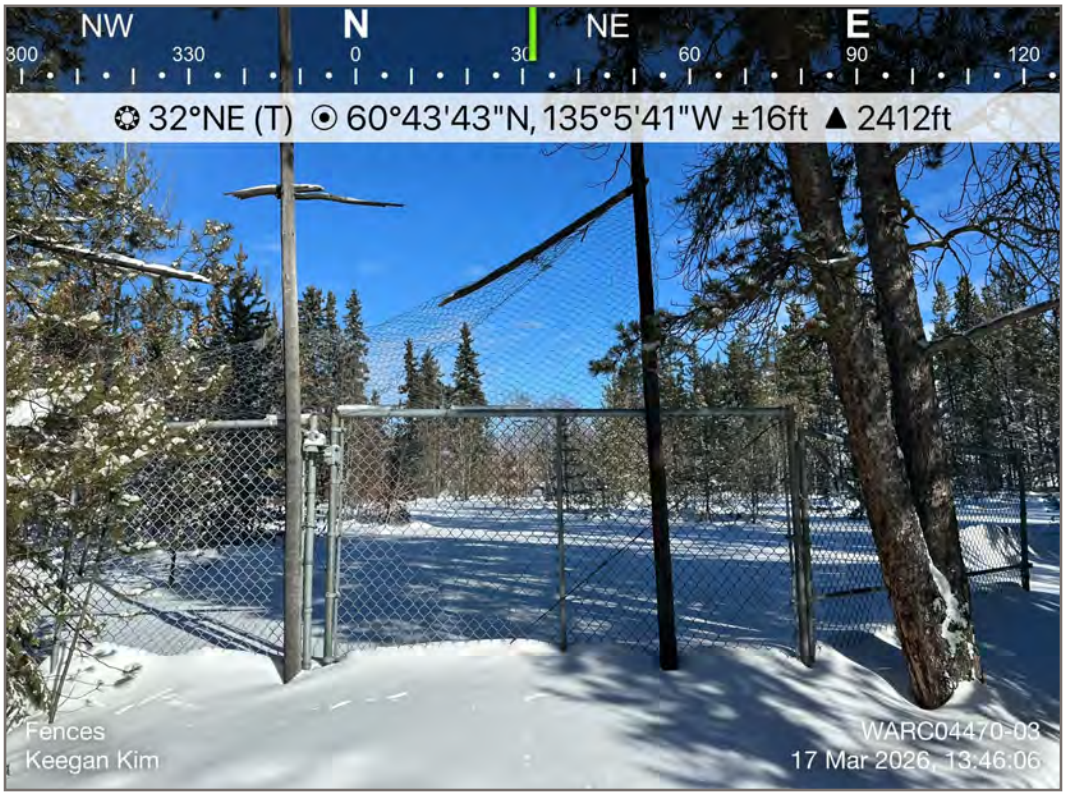


Photo 9: View of the small fenced section adjacent to the Valleyview playground.



Photo 10: View of surrounding sites, garbage bin and parking area for the Valleyview playground.



Photo 11: View of surrounding sites, Valleyview residential area and Valleyview Drive.



Photo 12: View of surrounding sites, backroad for the Valleyview residential area.

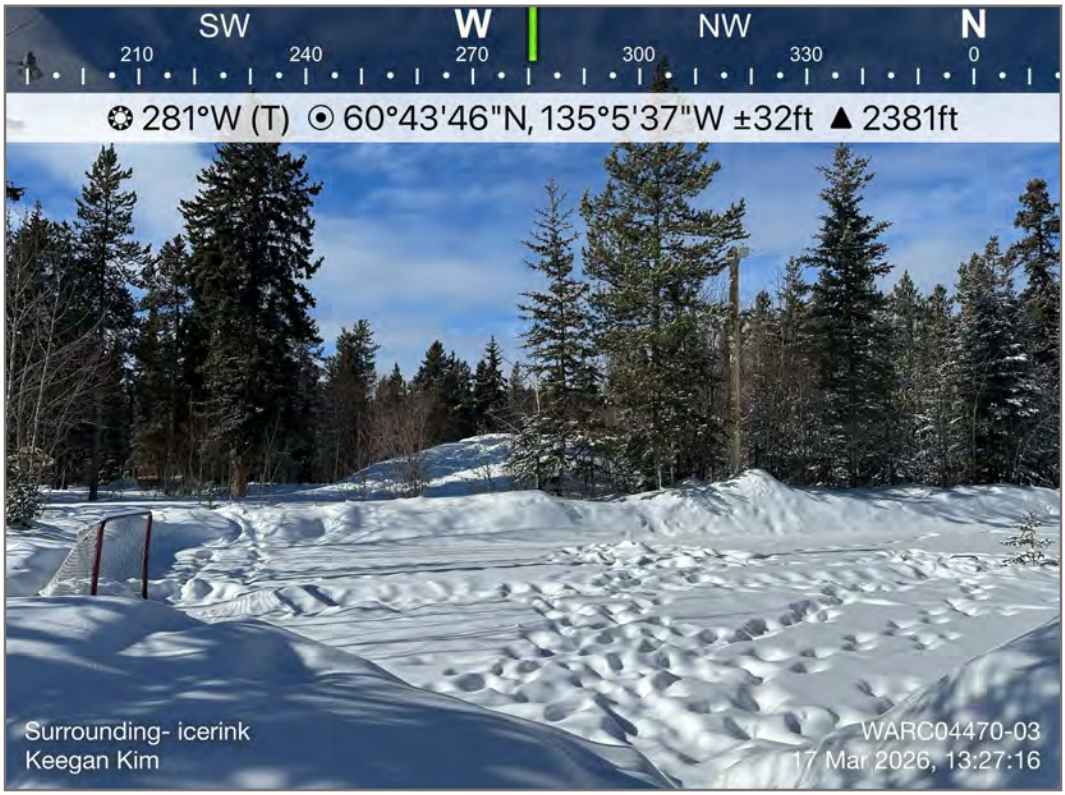


Photo 13: View of surrounding sites, Valleyview community ice rink.



Photo 14: View of surrounding sites, Valleyview playground.

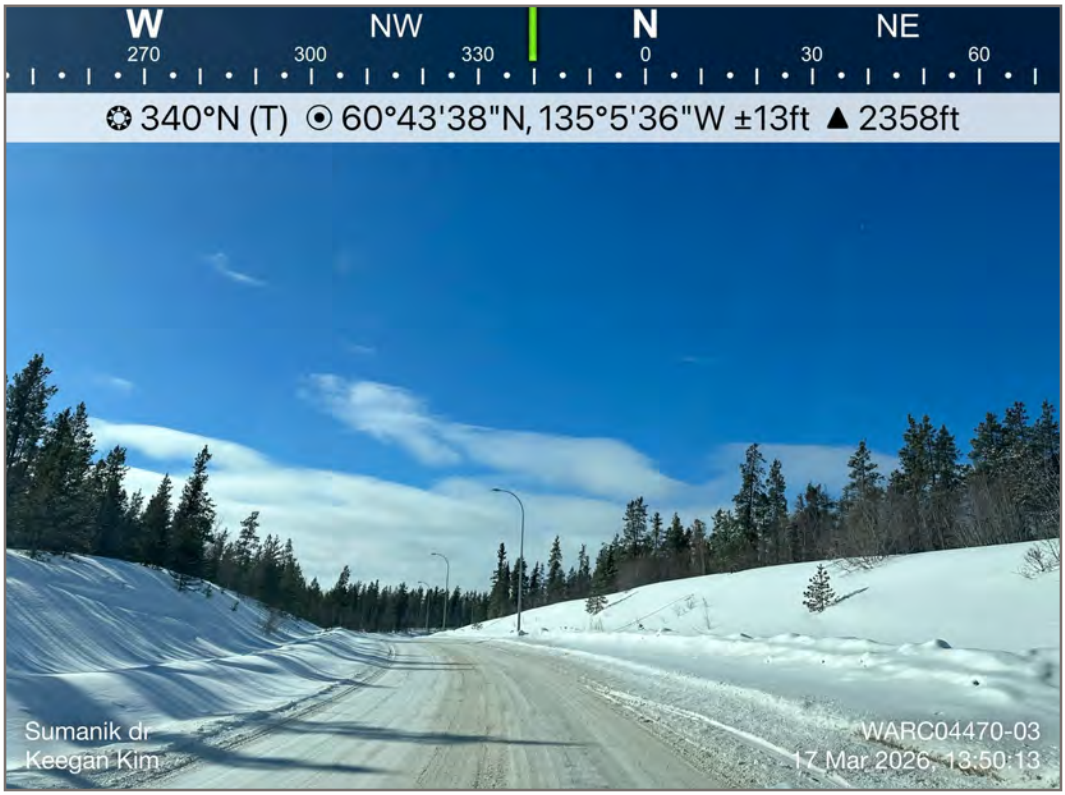


Photo 15: View of surrounding sites, Sumanik Drive.



Photo 16: View of surrounding sites, Hamilton Boulevard to the west of the Property.



Photo 17: View of surrounding sites, Canada Games Centre to the west of the Property.

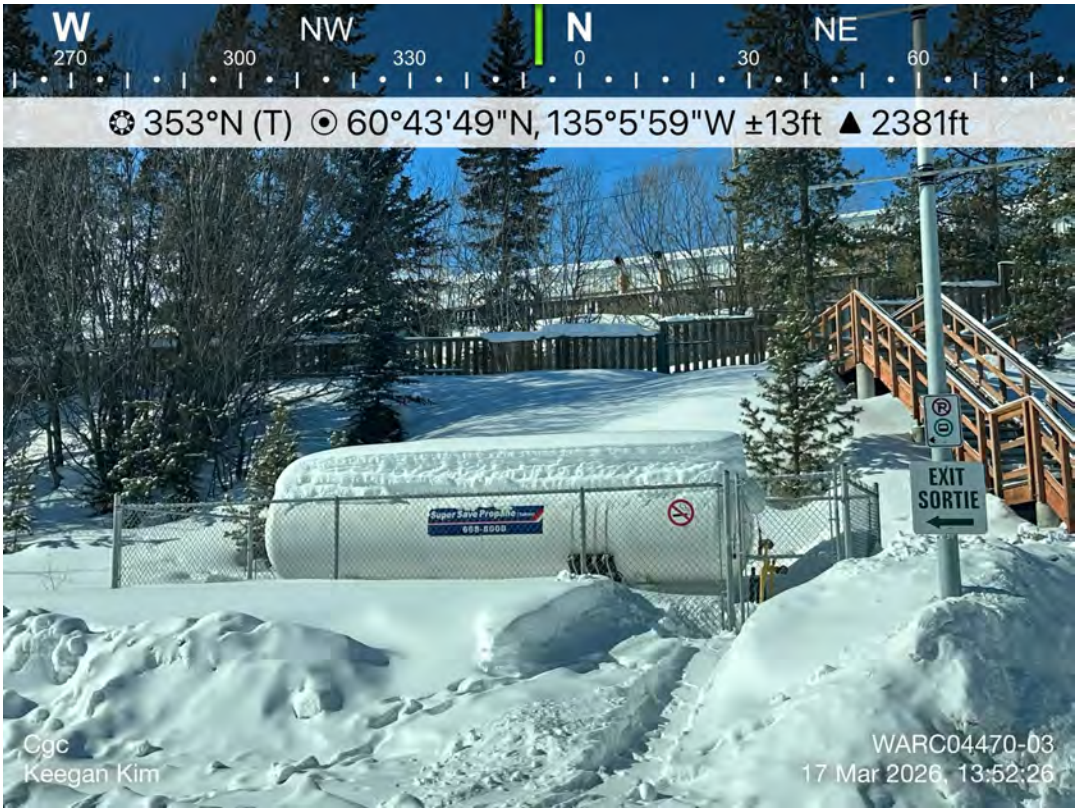


Photo 18: View of the propane tank at the Canada Games Centre.

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

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.

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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 persons 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 report, at or on the development proposed as of the date of the Professional Document requires a supplementary 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 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

APPENDIX B

LAND TITLES SEARCH RESULTS

Kim, Keegan1

From: LTO Search <ltosearch@yukon.ca>
Sent: Friday, March 6, 2026 7:50 AM
To: Kim, Keegan1
Subject: RE: Historical to Present LTO Request for Unsurveyed YG lot across from the Canada Games Centre

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. ⚠

Hi Keegan,

Unless a survey plan has been registered at Land Titles office, we will have no information on it. Lands Branch may be able to provide more information.

Sincerely,

Nancy Osborne
Clerk
Justice | Land Titles Office
T 867-667-5612 | F 867-393-6358 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 5, 2026 12:08 PM
To: LTO Search <ltosearch@yukon.ca>
Subject: Historical to Present LTO Request for Unsurveyed YG lot across from the Canada Games Centre

Hello,

I am looking to get information for an unsurveyed YG lot located across from the Canada Games Centre. Since it is unsurveyd, I have been unable to find any legal description or titles associated with it. Could you please confirm whether there are any historic or active titles for this portion of land?

Please see the attached image for reference (the light blue triangular area).

Regards,
Keegan



Figure 3: Unsurveyed YG lot across from the Canada Games Centre.

Keegan Kim, M.Sc, GIT | Hydrogeologist-in-Training | Environment and Water Practice
Direct **+1 (867) 668-9221** | Business **+1 (867) 668-3068** | Mobile **+1 (778) 554-3372** | keegan.kim1@tetratech.com

Tetra Tech Canada | *Leading with Science®* | Geoenvironmental
61 Wasson Place | Whitehorse, YT Y1A 0H7 Canada | tetratech.com | eba.ca

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TETRA TECH

Kim, Keegan1

From: Justine.Scheck <Justine.Scheck@yukon.ca>
Sent: Friday, March 13, 2026 3:23 PM
To: Kim, Keegan1
Subject: FW: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

You don't often get email from justine.scheck@yukon.ca. Learn why this is important

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Hi Keegan,
It looks like you've been given correct information about Lot 435 REM, but I'll try to add some explanation for context because it is a bit confusing.

A lot is not 'owned' by Yukon Government until it's titled. Most YG properties, particularly with assets are titled and thus a piece of public property owned by the Commissioner of Yukon. Yukon Government has administration and control of untitled land (surveyed or not surveyed), under the Yukon Lands Act or Territorial Lands (Yukon) Act. It's a bit different than ownership, and whether or not it matters depends on what you're trying to do with the land.

People often want to know if something is 'crown land' or not, and what they generally mean is, is it 'Yukon land'/public land? which is all the unsurveyed land, and surveyed but not titled land (like lot 435 REM), but 'crown land' is not an accurate description. In Yukon, the only crown land is that which is administered by the federal government. The Provinces use 'crown land' because they have constitutional authority over public land, but the framework is a bit different here.

Does that help a bit? Let me know if you have other questions.

Yukon

Justine Scheck
Special Projects Advisor
Energy Mines and Resources | Land Management Branch
T 867-667-5897 | F 867-393-6340 | Yukon.ca

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: March 13, 2026 2:48 PM
To: Justine.Scheck <Justine.Scheck@yukon.ca>
Subject: FW: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

---

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 2:40 PM

To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Good afternoon,

My name is Keegan, and I am with Tetra Tech's Whitehorse office. Our client, Kobayashi + Zedda Architects, is working with the Yukon Government to assess three potential sites for the new location of École Whitehorse Elementary School. I am preparing Phase I Environmental Site Assessment reports for these sites, and part of that work involves confirming current and historical ownership to identify any potential environmental concerns.

With that context, could you please advise who owns Lot 435 (REM)?

Thank you very much for your assistance.

Regards,
Keegan

Keegan Kim, M.Sc, GIT | Hydrogeologist-in-Training | Environment and Water Practice
Direct **+1 (867) 668-9221** | Business **+1 (867) 668-3068** | Mobile **+1 (778) 554-3372** | keegan.kim1@tetratech.com

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61 Wasson Place | Whitehorse, YT Y1A 0H7 Canada | tetratech.com | eba.ca

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TETRA TECH

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: Friday, March 13, 2026 1:38 PM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Good afternoon

We administer the location; we do not own.

Could you give the Land Management Branch a bit about yourself?

And a brief detail in why you are interested in Lot 435(REM)?

Thank you

Land Client Service
Land Management Branch (K-320)
Department of Energy, Mines & Resources
T 867-667-5215 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 11:50 AM
To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

> You don't often get email from keegan.kim1@tetratech.com. Learn why this is important

Thanks for the reply. Just to confirm, when you say your branch administers this lot, does that mean the parcel is Commissioner's Land owned by Yukon Government?

Regards,
Keegan

From: Land.Disposition <Land.Disposition@yukon.ca>
Sent: Friday, March 13, 2026 11:47 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Good morning/afternoon

We administer this Lot

Land Client Service
Land Management Branch (K-320)
Department of Energy, Mines & Resources
T 867-667-5215 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 13, 2026 10:35 AM
To: Land.Disposition <Land.Disposition@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

> You don't often get email from keegan.kim1@tetratech.com. Learn why this is important

Hi Land Management Branch,

Nancy from the Land Titles Office mentioned you might be able to help. I am inquiring about the ownership of Lot 435 (REM), Group 804, Whitehorse — 52105 CLSR YT, 26830 LTO YT. This is the lot located across from the Kopper King.

According to the Land Titles Office, the lot has a registered survey plan but no title, and they suggested that ownership information may fall under your branch.

Any information you can provide would be appreciated.

Thanks,
Keegan

From: LTO Search <ltosearch@yukon.ca>
Sent: Friday, March 13, 2026 10:29 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Hi Keegan,

Under the old Land Titles Act, survey plans and notifications, patents and grants were separate. So even if a survey plan was registered, the instrument to rais title didn't always come at the same date or at all. Under the new act, we require both.

Land Management Branch (667-5215) may be able to help you with your question of ownership.

Sincerely,

Nancy Osborne
Clerk
Justice | Land Titles Office
T 867-667-5612 | F 867-393-6358 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 12, 2026 4:08 PM

To: LTO Search <ltosearch@yukon.ca>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Hi Nancy,

Just to clarify—can Lot 435 (REM) have a lot name assigned but still be untitled at the same time? If so, would it be considered Crown land? I'm just trying to confirm who owns the lot.

This is the lot across from Kopper King.

Thanks,
Keegan

From: LTO Search <ltosearch@yukon.ca>
Sent: Friday, March 6, 2026 8:07 AM
To: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Subject: RE: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

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Hi Keegan,

Lot 435 Remainder, Plan 26830 is not titled.

Sincerely,

Yukon

Nancy Osborne
Clerk
Justice | Land Titles Office
T 867-667-5612 | F 867-393-6358 | Yukon.ca

From: Kim, Keegan1 <KEEGAN.KIM1@tetratech.com>
Sent: March 5, 2026 12:01 PM
To: LTO Search <ltosearch@yukon.ca>
Subject: Historical to Present LTO Request for Lot 435 (REM), across from the Kopper King

Hello,

I'm looking for a Historic to Present (1900-Present) Land Titles record search for Lot 435 (REM) Group 804 Whitehorse, 52105 CLSR YT, 26830 LTO YT.

I could not find the active titles for the Property via the online portal, and I am needing the historical land titles records as well. We do want to try and go as far back as we can as we need to assess the historical use of the site. The purpose of our assessment is to gather and review to determine the historical use and any potential environmental implications.

We should have money on our account to cover the cost of the search. If there are insufficient funds, please let me know and I'll arrange additional funds to be added to our account.

Regards,
Keegan

Keegan Kim, M.Sc, GIT | Hydrogeologist-in-Training | Environment and Water Practice
Direct **+1 (867) 668-9221** | Business **+1 (867) 668-3068** | Mobile **+1 (778) 554-3372** | keegan.kim1@tetratech.com

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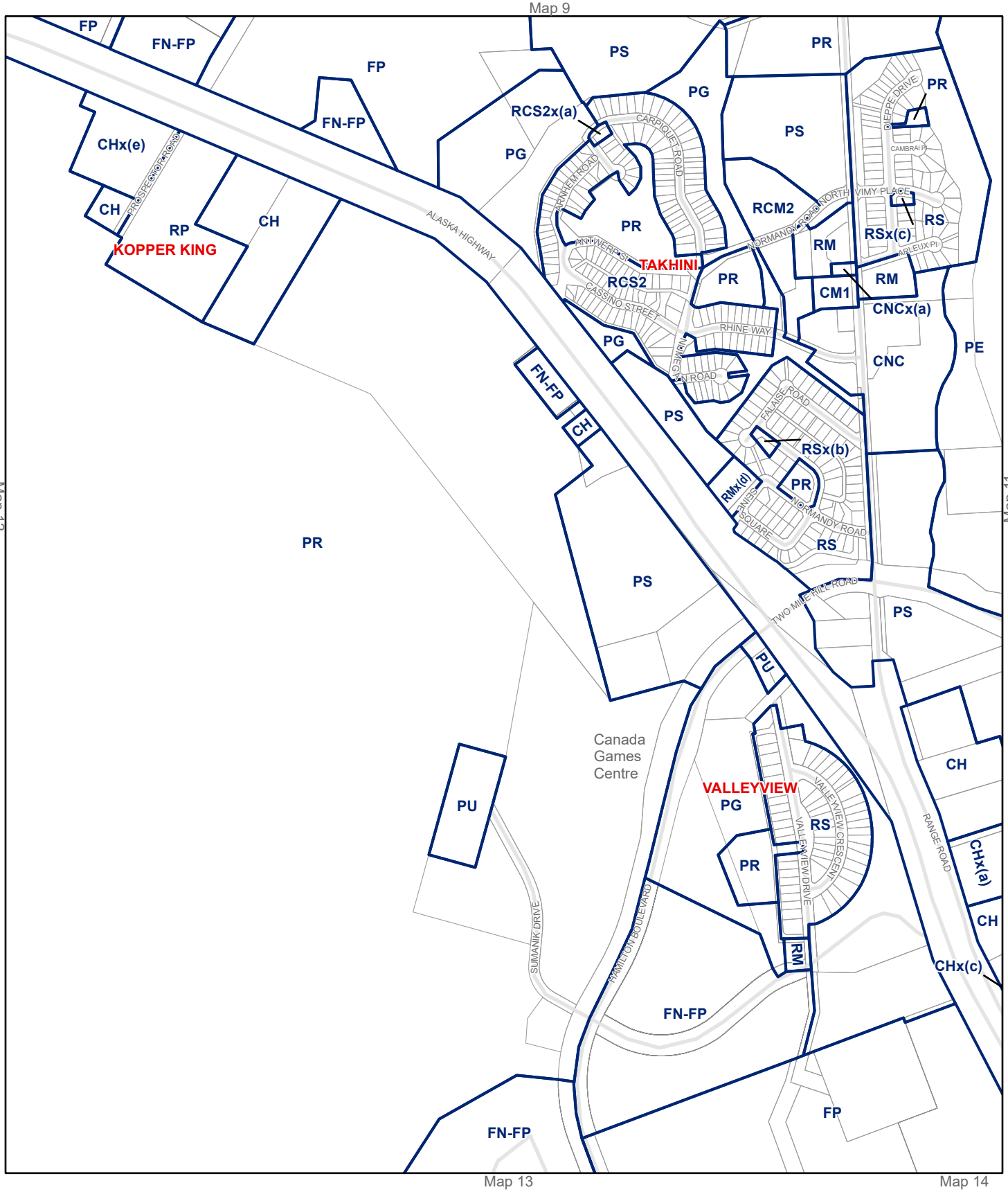
APPENDIX C

CITY OF WHITEHORSE ZONING MAPS

MAP 10

KOPPER KING

TAKHINI, VALLEYVIEW



Where a letter appears in brackets following a zoning designation, e.g. RSx(a), the letter corresponds to the 'special modifications' subsection for that zone.

N

0 410

Meters

Projection: NAD 1983 UTM Zone 8

Consolidation date: February 18, 2025

12.2 PG Greenbelt

12.2.1 Purpose

To provide a zone for areas of public land that are typically left in a natural state and may be used primarily for buffers, walkways, trails and for unorganized or passive recreation.

12.2.2 Principal Uses (***Modified by Bylaw 2014-17 passed May 26, 2014***)

a) community gardens and greenhouses

b) nature interpretation facilities

12.2.3 Secondary Uses

a) accessory building/structure

12.2.4 Conditional Uses

a) day-use areas

b) day-use cabins

c) outdoor participant recreation services

d) parks

12.2.5 Development Regulations

a) No development shall be permitted without the preparation and approval of a development assessment and a site master plan.

b) In addition to the regulations listed above, other regulations may apply. These include the general development regulations of section 5 (accessory development, site design, yards, etc.); the parking regulations of section 7; and the sign regulations of section 8.

12.3 PR Parks and Recreation

12.3.1 Purpose

To provide areas for indoor and outdoor active recreational uses requiring facilities and/or infrastructure.

12.3.2 Principal Uses (***Modified by Bylaw 2014-17 passed May 26, 2014***)

a) beaches
b) boat launches
c) community gardens and greenhouses
d) community recreation services
e) day-use areas
f) day-use cabins
g) docks
h) indoor participant recreation services
i) outdoor participant recreation services
j) nature interpretation facilities
k) parks
l) scientific and cultural exhibits
m) spectator sports establishments
n) temporary uses as defined by the Schwatka Lake Waterfront Policy

12.3.3 Secondary Uses

a) accessory building/structure
b) eating and drinking establishments
c) retail services, general
d) caretaker residence

12.3.4 Conditional Uses

a) campgrounds
b) exhibition and convention facilities

12.3.5 Development Regulations

a) The maximum height is 20.0 m.
b) The minimum front yard is 6.0 m.
c) The minimum side yard is 6.0 m.
d) The minimum rear yard is 7.5 m.

APPENDIX D

GROUNDWATER INFORMATION NETWORK RESULTS

Groundwater Information Network

Francais | English

GIN Basic Map Viewer

How to use this map



Zoom to a specific spatial extent

- Aquifers and Regions
  - Aquifers - NRCan
  - Aquifers - USGS
  - Hydrogeologic units - Newfoundland and Labrador
  - Hydrogeological Regions - Canada
- Water wells and Boreholes
  - Water Wells - Canada
  - Boreholes - Ontario
  - Water Wells - US NGWMN

GIN Log

View legend

GIN borehole Identifier : ca.yk.waterWell.204110167 Report an error Report an error
Borehole Data Provider ID : 204110167
Information Source : ENVIRONMENT YUKON
Longitude : -135.082667
Latitude : 60.722997
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Elevation : 701.10m
CDEM Elevation : *687*m
CDSM Elevation : m

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110167&
```

Timestamp: 2026-03-13T19:35:19.55-04:00

GIN Log

View legend

GIN borehole Identifier : ca.yk.waterWell.204110166 Report an error Report an error
Borehole Data Provider ID : 204110166
Information Source : ENVIRONMENT YUKON
Longitude : -135.084505
Latitude : 60.724962
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Elevation : 701.60m
CDEM Elevation : *687*m
CDSM Elevation : m

XML format

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Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110166&
```

Timestamp: 2026-03-13T19:35:17.459-04:00

GIN Log

View legend

GIN borehole Identifier : ca.yk.waterWell.204110165 Report an error Report an error
Borehole Data Provider ID : 204110165
Information Source : ENVIRONMENT YUKON
Longitude : -135.086251
Latitude : 60.726523
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Elevation : 696.30m
CDEM Elevation : 692m
CDSM Elevation : m

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110165&
```

Timestamp: 2026-03-13T19:35:15.71-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110198
Borehole Data Provider ID : 204110198
Information Source : ENVIRONMENT YUKON
Longitude : -135.103927
Latitude : 60.722273
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 42.70m
Elevation : 719.70m
CDEM Elevation : *720*m
CDSM Elevation : m
Water Yield : 1.50lps
Water Use : Water exploration test hole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	9.10	**Gravel** (More Info) **Sand** (More Info)	Coarse GRAVEL inter. bedded clayey sand	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
9.10	15.50	**Gravel** (More Info) **Clay** (More Info)	sandy CLAY and gravel	[24,44]% [34,57]%	[3E-4,3E-2]m/s [1E-11,4.7E-9]m/s
15.50	21.30	**Gravel** (More Info) **Sand** (More Info)	clayey SAND and GRAVEL	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
21.30	29.90	**Gravel** (More Info) **Clay** (More Info)	CLAY with some gravel	[24,44]% [34,57]%	[3E-4,3E-2]m/s [1E-11,4.7E-9]m/s
29.90	31.70	**Gravel** (More Info) **Sand** (More Info) **Clay** (More Info)	SAND, clay and gravel grey	[24,44]% [26,53]% [34,57]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s [1E-11,4.7E-9]m/s
31.70	31.90	**Gravel** (More Info)	boulder	[24,44]%	[3E-4,3E-2]m/s
31.90	34.40	**Gravel** (More Info) **Sand** (More Info) **Clay** (More Info)	SAND, clay and gravel	[24,44]% [26,53]% [34,57]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s [1E-11,4.7E-9]m/s
34.40	42.70	**Bedrock** (More Info)	BEDROCK - Granodiorite, weathered		

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=yk.ww.204110198&
```

Timestamp: 2026-03-13T19:35:11.154-04:00

GIN Log

Well log
View legend

GIN borehole Identifier : ca.yk.waterWell.204110197
Borehole Data Provider ID : 204110197
Information Source : ENVIRONMENT YUKON
Longitude : -135.102734
Latitude : 60.721816
Online resource : ENVIRONMENT YUKON
Date of Drilling :
Length : 39.90m
Elevation : 723.20m
CDEM Elevation : *719*m
CDSM Elevation : m
Water Yield : 1.90lps
Water Use : Water exploration test hole
Status : Unknown

Report an error Report an error

DEPTH FROM (METERS)	DEPTH TO (METERS)	GIN LITHOLOGY	ORIGINAL LITHOLOGY	POROSITY*	HYDRAULIC CONDUCTIVITY*
0.00	3.40	**Gravel** (More Info)	coarse GRAVEL and cobbles	[24,44]%	[3E-4,3E-2]m/s
3.40	11.90	**Gravel** (More Info) **Sand** (More Info)	fine to med. SAND and gravel	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
11.90	21.30	**Gravel** (More Info) **Sand** (More Info)	coarse SAND and GRAVEL	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
21.30	23.80	**Gravel** (More Info) **Sand** (More Info)	med. SAND, clayey and gravel	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
23.80	25.90	**Gravel** (More Info) **Sand** (More Info)	coarse SAND and GRAVEL	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
25.90	32.00	**Gravel** (More Info) **Sand** (More Info) **Clay** (More Info)	med. SAND clay and gravel	[24,44]% [26,53]% [34,57]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s [1E-11,4.7E-9]m/s
32.00	36.30	**Clay** (More Info)	CLAY	[34,57]%	[1E-11,4.7E-9]m/s
36.30	40.20	**Gravel** (More Info) **Sand** (More Info)	coarse SAND, clayey and gravel	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
40.20	49.10	**Gravel** (More Info) **Clay** (More Info)	sily CLAY with some gravel	[24,44]% [34,57]%	[3E-4,3E-2]m/s [1E-11,4.7E-9]m/s
49.10	50.00	**Gravel** (More Info) **Sand** (More Info)	SAND and GRAVEL, clayey	[24,44]% [26,53]%	[3E-4,3E-2]m/s [2E-7,6E-3]m/s
50.00	50.30	**Clay** (More Info)	CLAY	[34,57]%	[1E-11,4.7E-9]m/s
50.30	0.00!	**Bedrock** (More Info)	BEDROCK - weathered granodiorite		

*Well log. (*Notice: Values taken from literature)*

XML format

Important Notices

Please use this citation if this data is used in a publication:
Data from: ENVIRONMENT YUKON , provided by GIN (Groundwater Information Network).

Accessed at

```
https://gin.geosciences.ca/service/api_ngwds:gin2/en/waterMLData/index.html
?
PROFILE=gin&INFO_FORMAT=text%2Fhtml&REQUEST=GetFeature&FID=vk.ww.204110197&
```

APPENDIX E

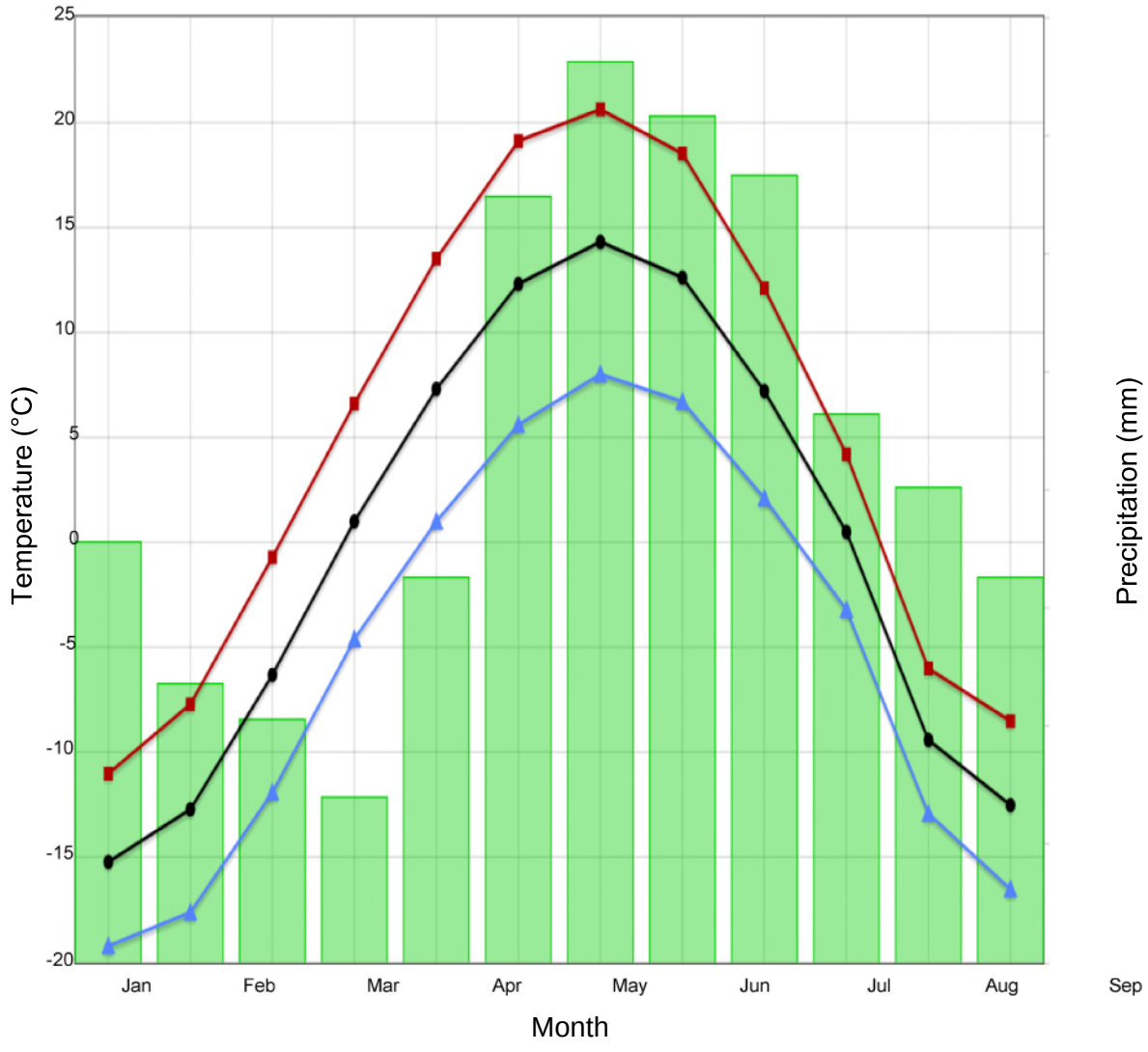
WHITEHORSE HISTORICAL CLIMATE DATA

Government of Canada | Gouvernement du Canada

Canadian Climate Normals 1981-2010 Station Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1981 to 2010 Canadian Climate Normals WHITEHORSE A



	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE A
YUKON TERRITORY

Latitude:	60°42'34.200" N
Longitude:	135°04'07.800" W
Elevation:	706.20 m
Climate ID:	2101300
WMO ID:	71964
TC ID:	YXY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Co
Daily Average (°C)	-15.2	-12.7	-6.3	1.0	7.3	12.3	14.3	12.6	7.2	0.5	-9.4	-12.5	-0.1	
Standard Deviation	6.5	4.7	3.5	2.3	1.5	1.3	0.9	1.4	1.6	1.8	4.8	4.7	3.3	
Daily Maximum (°C)	-11.0	-7.7	-0.7	6.6	13.5	19.1	20.6	18.5	12.1	4.2	-6.0	-8.5	5.1	

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Minimum (°C)	-19.2	-17.6	-11.9	-4.6	1.0	5.6	8.0	6.7	2.1	-3.2	-12.9	-16.5	-5.2	C
Extreme Maximum (°C)	9.0	11.7	11.7	21.8	34.1	**34.4**	32.8	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	1977/ 26	1968/ 27	1979/ 22	2002/ 30	1983/ 30	**1969/ 14**	1951/ 09	1999/ 05	1942/ 03	2003/ 03	1970/ 02	2004/ 23		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-2.8	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/ 31**	1968/ 02	1972/ 08	1986/ 10	2002/ 03	1971/ 03	1984/ 19	1948/ 25	1983/ 27	1982/ 28	2006/ 27	1942/ 19		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	0.3	0.0	0.0	1.2	14.3	32.4	38.1	35.5	29.0	8.8	1.0	0.4	160.9
Snowfall (cm)	25.4	18.3	14.8	7.2	2.0	0.0	0.0	0.3	4.7	18.6	27.0	23.5	141.8
Precipitation (mm)	17.8	11.8	10.3	7.0	16.3	32.4	38.1	35.8	33.3	23.2	20.1	16.3	262.3
Average Snow Depth (cm)	22	27	23	8	0	0	0	0	0	2	10	15	9
Median Snow Depth (cm)	22	27	23	8	0	0	0	0	0	0	10	15	9
Snow Depth at Month-end (cm)	26	25	18	1	0	0	0	0	0	5	13	18	9
Extreme Daily Rainfall (mm)	3.4	0.8	0.8	4.4	12.6	**44.9**	23.2	30.7	24.6	18.3	9.4	4.2	
Date (yyyy/dd)	1981/ 03	1984/ 04	1944/ 15	1983/ 30	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1983/ 04	1970/ 02	1949/ 03	1981/ 18	

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Cc
Extreme Daily Snowfall (cm)	14.0	16.7	**27.2**	16.6	12.2	12.7	0.0	8.6	21.6	15.0	14.6	27.0		
Date (yyyy/dd)	1968/ 03	1982/ 09	**1967/ 08**	2006/ 14	1942/ 04	1972/ 01	1942/ 01	1974/ 22	1956/ 27	1999/ 23	1978/ 23	1980/ 25		
Extreme Daily Precipitation (mm)	9.5	10.4	10.4	15.8	12.6	**44.9**	23.2	30.7	25.2	23.6	11.4	18.7		
Date (yyyy/dd)	1994/ 17	1952/ 28	1962/ 07	2006/ 14	2000/ 26	**1985/ 27**	1991/ 27	1948/ 01	1986/ 23	1970/ 02	1955/ 06	1980/ 25		
Extreme Snow Depth (cm)	86	94	**94**	66	38	0	0	3	20	21	52	69		
Date (yyyy/dd)	1972/ 30	1972/ 16	**1972/ 01**	1967/ 13	1972/ 01	1955/ 01	1955/ 01	1969/ 11	1956/ 28	1982/ 31	1978/ 25	1980/ 29		

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

► Frost-Free

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Station / Element Metadata

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a station with 30 years of record between 1981 and 2010 with no missing years would be a more reliable normal than a station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE A

Province	YT
Latitude (dd mm):	60 42 N
Country	CAN

Longitude (ddd mm):	135 04 W
Time Zone	PST
Latitude (decimal degrees):	60.71 N
Climate ID:	2101300
Longitude (decimal degrees):	135.07 W
WMO ID:	71964
Elevation (m):	706.2
TC ID:	YXY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1981	2007	25	3	8675	99.7
Standard Deviation	1981	2007	25	3	8675	99.7
Daily Maximum (°C)	1981	2007	25	3	8675	99.7
Daily Minimum (°C)	1981	2007	25	3	8675	99.7
Extreme Maximum (°C)	1942	2007			22837	99.9
Extreme Minimum (°C)	1942	2007			22836	99.9

▼ Precipitation

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations

Precipitation

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Rainfall (mm)	1981	2007	25	3	8644	99.3
Snowfall (cm)	1981	2007	25	3	8644	99.3
Precipitation (mm)	1981	2007	25	3	8644	99.3
Average Snow Depth (cm)	1981	2007	24	3	8491	97.5
Median Snow Depth (cm)	1981	2007	24	3	8491	97.5
Snow Depth at Month-end (cm)	1981	2007	25	3	284	99.3
Extreme Daily Rainfall (mm)	1942	2007			22835	99.9
Extreme Daily Snowfall (cm)	1942	2007			22836	99.9
Extreme Daily Precipitation (mm)	1942	2007			22836	99.9
Extreme Snow Depth (cm)	1955	2007			18132	99.6

► Days with Maximum Temperature

► Days with Minimum Temperature

► Days with Rainfall

► Days With Snowfall

► Days with Precipitation

► Days with Snow Depth

► Wind

► Degree Days

► Evaporation

► Bright Sunshine

► Humidex

► Wind Chill

► Humidity

► Pressure

► Radiation

► Visibility (hours with)

► Cloud Amount (hours with)

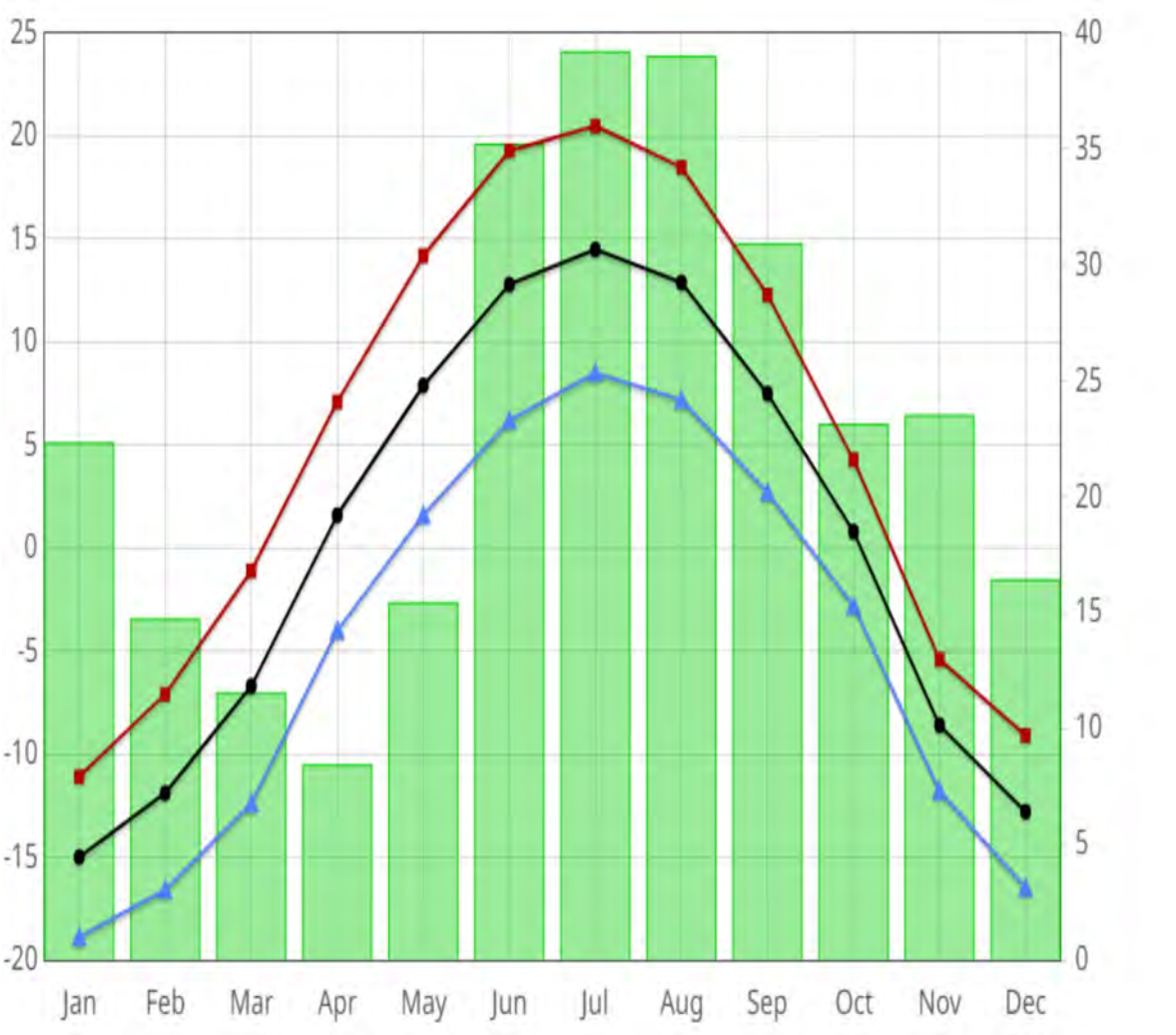
► Frost-Free

Date modified:
2019-02-20

Canadian Climate Normals 1991-2020 Data

▼ Temperature and Precipitation Graph

Temperature and Precipitation Graph for 1991 to 2020 Canadian Climate Normals
WHITEHORSE



	Daily Maximum Temperature (°C)
	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a code for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Average (°C)	-15.0	-11.9	-6.7	1.6	7.9	12.8	14.5	12.9	7.5	0.8	-8.6	-12.8	0.2	A
Standard Deviation	4.5	4.5	3.4	1.9	1.5	1.2	1.0	1.3	1.5	1.7	4.0	4.3	1.6	A
Daily Maximum (°C)	-11.1	-7.1	-1.1	7.1	14.2	19.3	20.5	18.5	12.3	4.3	-5.4	-9.1	5.2	A
Daily Minimum (°C)	-18.9	-16.6	-12.4	-4.0	1.6	6.2	8.5	7.2	2.7	-2.8	-11.8	-16.5	-4.7	A

Temperature Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Minimum Daily Mean (°C)	-48.1	-47.5	-31.7	-20.3	-6.4	3.3	5.6	0.8	-9.6	-24.2	-37.3	-44.5		
Date (yyyy/dd)	1947/31	1947/02	1972/08	1944/01	2002/03	1955/03	1945/06	1984/28	1983/27	1975/31	1948/27	1977/09		
Maximum Daily Mean (°C)	6.9	8.4	8.5	12.2	23.7	23.9	22.8	23.1	18.9	13.4	7.5	7.2		
Date (yyyy/dd)	2009/18	1968/27	2019/22	2003/25	1983/30	2004/23	1958/05	1994/09	2017/05	1958/01	1970/02	1999/23		
Extreme Maximum (°C)	10.0	11.7	16.8	21.8	34.1	**34.4**	33.2	31.6	26.7	19.3	11.7	10.6		
Date (yyyy/dd)	2009/18	1968/27	2016/31	2002/30	1983/30	**1969/14**	2009/30	1999/05	1942/03	2003/03	1970/02	2004/23		
Minimum Daily Maximum (°C)	-43.9	-44.4	-24.8	-15.0	-1.1	6.7	7.2	2.7	-5.4	-20.0	-33.9	-42.7		
Date (yyyy/dd)	1947/31	1947/02	2007/01	1944/01	2002/02	1943/07	1950/27	1984/27	1983/26	1975/31	1948/27	1977/09		
Extreme Minimum (°C)	**-52.2**	-51.2	-40.6	-29.4	-12.9	-5.7	-0.5	-4.4	-19.4	-31.1	-41.0	-47.8		
Date (yyyy/dd)	**1947/31**	1968/02	1972/08	1986/10	2002/03	2012/04	1984/19	1948/25	1983/27	1982/28	2006/27	1942/19		
Maximum Daily Minimum (°C)	3.7	5.0	4.6	5.6	13.3	17.2	17.2	17.1	14.3	10.2	4.4	5.2		
Date (yyyy/dd)	2009/18	1968/27	2019/18	1953/28	1983/30	1969/16	1999/14	1994/09	2013/07	2003/04	1956/28	1999/23		

▼ Precipitation

Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Precipitation (mm)	22.3	14.7	11.5	8.4	15.4	35.2	39.2	39.0	30.9	23.1	23.5	16.4	279.6	C

Precipitation Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Extreme Daily Precipitation (mm)	16.2	17.9	10.4	15.8	12.6	**44.9**	30.9	30.7	25.2	23.6	21.3	18.7		
Date (yyyy/dd)	2015/21	2020/10	1962/07	2006/14	2000/26	**1985/27**	2014/04	1948/01	1986/23	1970/02	2020/02	1980/25		

▼ Days With ...

Days With ...

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Freezing Rain or Freezing Drizzle	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.07	0.29	0.28	0.21	0.99	A
Thunderstorms	0.0	0.11	0.0	0.0	0.33	1.9	1.9	0.46	0.11	0.07	0.0	0.03	4.9	A
Hail	0.0	0.0	0.0	0.0	0.07	0.04	0.14	0.04	0.0	0.0	0.0	0.0	0.29	A
Fog, Ice Fog, or Freezing Fog	2.2	0.64	0.07	0.11	0.04	0.29	0.29	0.50	1.1	1.1	1.7	1.3	9.3	A
Smoke or Haze	0.0	0.04	0.0	0.07	0.22	0.64	1.2	1.4	0.04	0.0	0.07	0.07	3.7	A

▼ Days with Maximum Temperature

Days with Maximum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
<= 0 °C	26.4	22.2	14.1	2.1	0.05	0.0	0.0	0.0	0.16	5.0	22.9	25.9	118.7	C
> 0 °C	4.6	6.1	16.9	27.9	31.0	30.0	31.0	31.0	29.8	26.0	7.2	5.1	246.5	C
> 10 °C	0.0	0.04	0.52	7.3	25.0	29.7	31.0	30.4	22.4	3.2	0.08	0.04	149.7	C
> 20 °C	0.0	0.0	0.0	0.19	2.9	11.8	16.6	10.0	0.76	0.0	0.0	0.0	42.2	C
> 30 °C	0.0	0.0	0.0	0.0	0.0	0.43	0.25	0.19	0.0	0.0	0.0	0.0	0.87	C
> 35 °C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C

▼ Days with Minimum Temperature

Days with Minimum Temperature

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
> 0 °C	0.43	0.35	0.68	5.2	19.9	29.4	31.0	30.4	21.9	8.9	0.74	0.62	149.5	C
<= 2 °C	30.8	28.1	30.7	28.4	17.9	3.1	0.15	2.5	12.9	27.3	29.8	30.9	242.6	C
<= 0 °C	30.6	27.9	30.3	24.8	11.1	0.63	0.04	0.65	8.1	22.1	29.3	30.4	215.8	C
< -2 °C	29.6	27.1	28.0	18.4	4.8	0.0	0.0	0.04	3.5	15.2	27.4	29.7	183.7	C
< -10 °C	23.7	20.7	15.6	3.0	0.12	0.0	0.0	0.0	0.0	2.8	16.1	22.6	104.5	C
< -20 °C	13.6	10.2	6.2	0.56	0.0	0.0	0.0	0.0	0.0	0.08	4.3	10.2	45.2	C
< -30 °C	5.4	2.6	0.84	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.63	3.5	13.0	C

▼ Days with Precipitation

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 0.2 mm	12.7	9.2	7.2	5.1	7.3	11.1	13.0	12.0	12.2	10.7	13.0	11.3	124.7	C

Days with Precipitation

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
>= 5 mm	0.88	0.46	0.43	0.36	1.1	2.1	2.5	2.9	1.7	1.0	0.92	0.43	14.8	C
>= 10 mm	0.15	0.13	0.0	0.04	0.17	0.77	0.76	0.81	0.68	0.25	0.12	0.09	4.0	C
>= 25 mm	0.0	0.0	0.0	0.0	0.0	0.18	0.08	0.0	0.0	0.0	0.0	0.0	0.26	C

▼ Wind

Wind

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Speed (km/h)	11.3	11.9	11.8	11.4	11.4	10.1	9.8	10.1	11.8	12.2	12.3	12.5	11.4	A
Most Frequent Direction	S	S	S	S	S	S	S	S	S	S	S	S	S	A

Wind Extremes (Long-Term)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Direction of Extreme Speed	SE	SE	S	N	SE	SE	E	S	S	SE	SE	SE		
Extreme Speed (km/h)	72	68	64	60	64	56	63	52	72	63	68	**72**		
Date (yyyy/dd)	1962/09	1957/15	1953/14	1966/09	1965/06	1965/16	1959/30	1998/29	1967/17	1961/28	1962/18	**1954/17**		
Extreme Gust Speed (km/h)	100	106	93	89	85	90	91	84	101	97	**106**	97		
Date (yyyy/dd)	1965/17	1964/19	1965/10	1965/16	1965/02	1963/26	1982/07	1960/11	1967/18	1958/01	**1962/18**	1960/14		
Direction of Extreme Gust Speed	SE	SE	SW	N	SE	W	SE	SE	S	S	SE	SE		

▼ Degree Days

Degree Days

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Above 24 °C	0	0	0	0	0	0	0	0	0	0	0	0	0	C
Above 18 °C	0	0	0	0	0	3.5	3.5	3.3	0	0	0	0	10.4	C
Above 15 °C	0	0	0	0	1.1	15.1	22.9	16.2	0.7	0	0	0	55.9	C
Above 10 °C	0	0	0	0.3	18.3	90.1	138.9	95.8	12.6	0.7	0	0	356.7	C
Above 5 °C	0.1	0.1	1	10.6	95.5	232.7	293.3	242.7	90.2	10.1	0.1	0.2	976.6	C
Above 0 °C	2.8	2.8	13.3	80.7	239.1	382.6	448.3	397.5	225.7	68.2	4.9	2.6	1868.5	C
Below 0 °C	467.7	343.6	211.4	32.2	0.9	0	0	0	1.1	45.5	266.2	406	1774.7	C
Below 5 °C	620	482	354.1	112.2	12.4	0	0	0.3	15.5	142.4	411.5	558.6	2,709	C
Below 10 °C	774.9	623.1	508.2	251.9	90.1	7.5	0.5	8.3	87.9	288.1	561.4	713.4	3915.3	C
Below 15 °C	929.9	764.3	663.2	401.6	228	82.4	39.5	83.7	226.1	442.4	711.4	868.4	5440.8	C
Below 18 °C	1022.9	849.1	756.2	491.6	319.9	160.9	113.1	163.8	315.4	535.4	801.4	961.4	6490.9	C

▼ Quintiles

Quintiles

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 1 (Lower Bound)	9.1	0	0	0	2	8.8	14.2	9.9	5.9	5.9	5.8	3.2		
Quintile 1 (Upper Bound)	11.9	6	2.2	1.4	5.3	19.8	26.5	22.5	18.1	14.3	12.3	8.3		

Quintiles														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Quintile 2 (Upper Bound)	20.1	8.7	6.8	3.7	11.6	30	31.8	31.9	20.9	18.6	18.6	14.1		
Quintile 3 (Upper Bound)	22.9	14	15	7.4	16.8	38.4	40.4	42.9	28	26.3	25.2	17.5		
Quintile 4 (Upper Bound)	26.5	23.7	21.8	16.3	22.9	49.1	54.9	54.1	40.2	30.8	31.7	23.1		
Quintile 5 (Upper Bound)	44.7	40.6	29.1	29.7	43.6	82.2	65.6	82.1	80.3	42.2	55.8	65.4		

▼ Humidity

Humidity														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Vapour Pressure (kPa)	0.2	0.2	0.3	0.4	0.5	0.8	1	0.9	0.7	0.5	0.3	0.2	0.5	A

▼ Pressure

Pressure														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Average Station Pressure (kPa)	92.6	92.8	92.7	92.7	93	93	93.2	93.1	92.8	92.5	92.4	92.4	92.8	A
Average Sea Level Pressure (kPa)	101.4	101.5	101.3	101.2	101.4	101.3	101.5	101.4	101.2	101.1	101.1	101.1	101.3	A

▼ Visibility (hours with)

Visibility (hours with)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
< 1 km	26.4	2.3	0.6	0.3	0.1	0.6	0.5	1.2	2.1	2.8	6	5.8	48.7	A
1 to 9 km	98.3	58.9	53.1	16.5	8.8	10.5	12.3	19	20	62.4	119.2	85.4	564.2	A
> 9 km	619	617.2	689.3	702.9	734.9	708.7	730.3	723.3	697.3	678.2	594.1	652.2	8147.2	A

▼ Frost-Free

1991 to 2020 Canadian Climate Normals Data

Frost-Free		
	Date/Days	Code
Average Date of Last Spring Frost	Jun 03	D
Average Date of First Fall Frost	Aug 28	D
Average Length of Frost-Free Period	85 Days	D

1991 to 2020 Canadian Climate Normals Data

Frost-Free

	10%	25%	33%	50%	66%	75%	90%
Probability of first temperature in fall <= 0°C, on or before (Date)	Jun 22	Jun 15	Jun 10	Jun 04	Jun 02	May 28	May 22
Probability of last temperature in spring <= 0°C, on or after (Date)	Aug 11	Aug 22	Aug 25	Aug 30	Sep 03	Sep 04	Sep 14
Probability of frost-free period equal to or less than indicated period (Days)	61	68	76	85	91	96	103

Legend

- A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for **either** temperature **or** precipitation)
- B = At least 25 years
- C = At least 20 years
- D = At least 15 years

▼ Element Analytics

Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a composite station with 30 years of record between 1991 and 2020 with no missing years would be a more reliable normal than a composite station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

WHITEHORSE

YUKON TERRITORY

▼ Temperature

Temperature

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Daily Average (°C)	1991	2020	29	3	9994	97.4
Standard Deviation	1991	2020	29	3	9994	97.4
Daily Maximum (°C)	1991	2020	29	3	9995	97.4
Daily Minimum (°C)	1991	2020	29	3	10040	97.9

Temperature Extremes (Long-Term)

	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Maximum Daily Mean (°C)	1942	2020			27922	99.5
Minimum Daily Mean (°C)	1942	2020			27922	99.5
Extreme Maximum (°C)	1942	2020			27929	99.5
Minimum Daily Maximum (°C)	1942	2020			27929	99.5
Maximum Daily Minimum (°C)	1942	2020			27943	99.6
Extreme Minimum (°C)	1942	2020			27943	99.6

▼ Precipitation

Precipitation						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Precipitation (mm)	1991	2020	27	4	8889	88

Precipitation Extremes (Long-Term)						
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations
Extreme Daily Precipitation (mm)	1942	2020			27814	99.6

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

▶ Frost-Free

▼ Composite Metadata / Threads

The Climate Normals, Averages, and Extremes are based on Canadian climate composite stations with at least 15 years of data between 1991 and 2020. Composite stations are comprised of one or more stations operated by the Meteorological Service of Canada (MSC) or its partners, where data from individual stations are joined together to create a 30-year data series for a given location. All stations (and associated metadata) used as part of the composite are listed below, alongside the threads used to calculate each Normals/Extremes element.

WHITEHORSE

YUKON TERRITORY

Related Data
Calculation Information

Normals Data

Element Analytics

Download Data

☑ Composite Station Metadata (CSV)

☐ Composite Station Threads (CSV)

Note:

Both files (CSV) can be downloaded

together as a zipped folder

Download

Composite Station Metadata

All stations used in the composite for all Normals and Extremes elements are listed. Station metadata includes station name, station identifiers, coordinates, and elevation.

Composite Station Name: WHITEHORSE

Station Name	Climate ID	WMO ID	TC ID	Latitude	Longitude	Elevation (m)
WHITEHORSE A	2101303		YXY	60°42'34.000" N	135°04'02.000" W	706.2
WHITEHORSE A	2101300		YXY	60°42'34.200" N	135°04'07.800" W	706.2
WHITEHORSE AUTO	2101310		VXY	60°43'59.000" N	135°05'52.000" W	707

Composite Station Threads

Station composites are threaded from the beginning of the Normals period starting in 1991 to the end of 2020, where the predecessor site's data is used until the end of its period of record and is then joined to the current operating site to extend the time series. Threads are generated by climate element for hourly and daily data, and may vary due to differences in station history, instrumentation, meteorological data availability, data quality, or proximity. Normals and Extremes elements are grouped based on the climate element used in its calculation. For long-term extremes (LTE), the same Normals period threads are extended back in time to the earliest date of data available from the first station used in the data series. These use the LTE Start Date instead of the Start Date, that applies to normals period elements.

For additional station metadata information, refer to the above section "Composite Station Metadata".

Composite Station Name: WHITEHORSE

▼ Temperature

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Daily Average (°C) • Standard Deviation • Maximum Daily Mean (°C) (LTE) • Minimum Daily Mean (°C) (LTE)	DAILY MEAN TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Maximum (°C) • Extreme Maximum (°C) (LTE) • Minimum Daily Maximum (°C) (LTE)	DAILY MAXIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31
• Daily Minimum (°C) • Maximum Daily Minimum (°C) (LTE) • Extreme Minimum (°C) (LTE)	DAILY MINIMUM TEMPERATURE	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▼ Precipitation

Normals/Extremes Elements	Climate Element	Station Name	Climate ID	LTE Start Date	Start Date	End Date
• Precipitation (mm) • Extreme Daily Precipitation (mm) (LTE)	DAILY TOTAL PRECIPITATION	WHITEHORSE A	2101300	1942/04/01	1991/01/01	2012/10/31
		WHITEHORSE AUTO	2101310		2012/11/01	2020/12/31

▶ Days With ...

▶ Days with Maximum Temperature

▶ Days with Minimum Temperature

▶ Days with Precipitation

▶ Wind

▶ Degree Days

▶ Quintiles

▶ Humidity

▶ Pressure

▶ Visibility (hours with)

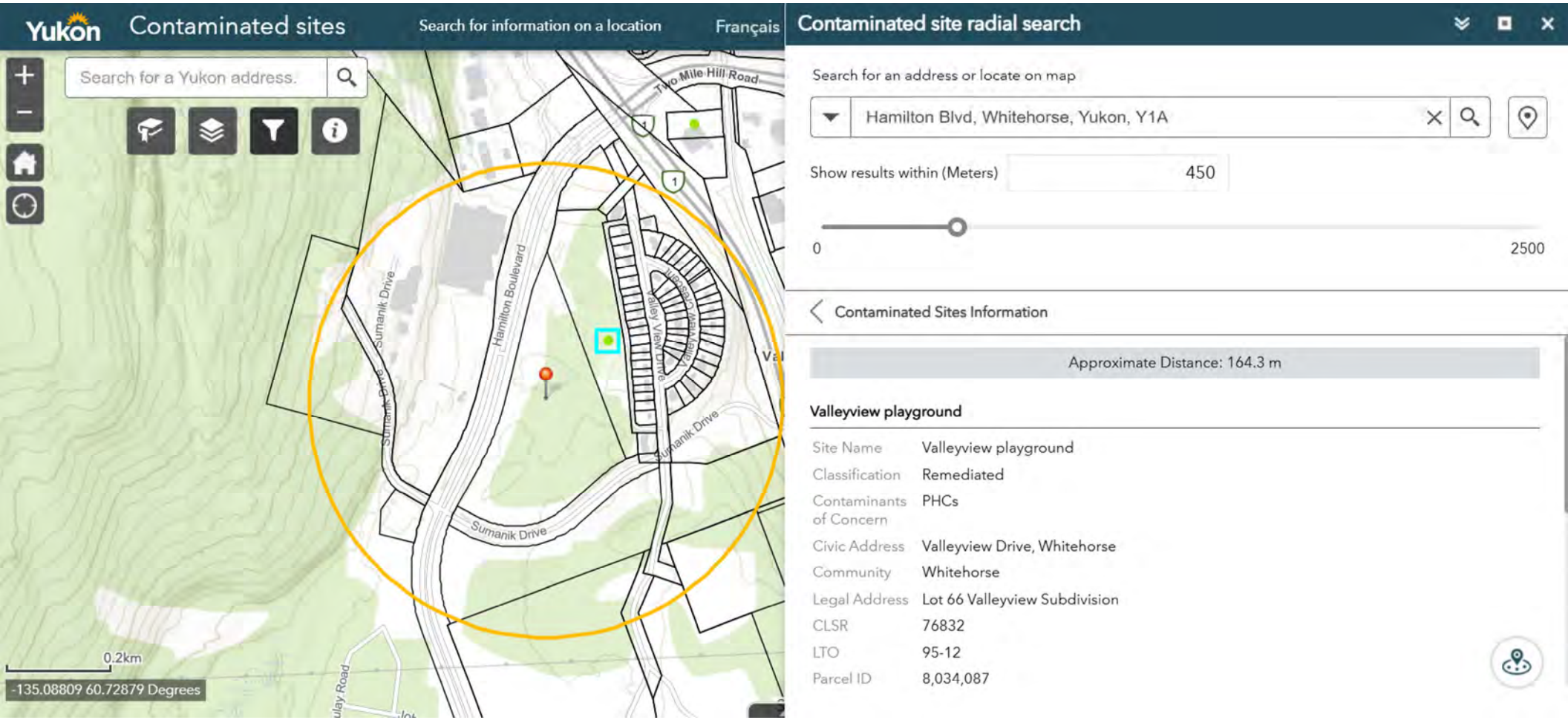
▶ Frost-Free

Date modified:

2023-09-18

APPENDIX F

YUKON GOVERNMENT ENVIRONMENTAL PROTECTION BRANCH SPILLS AND CONTAMINATED SITES SEARCH


Yukon
Contaminated sites
Search for information on a location
Français
Search for a Yukon address.
Two Mile Hill Road
Hamilton Boulevard
Sumanik Drive
Valley View Drive
Sumanik Drive
Sumanik Drive
Sumanik Drive
0.2km
-135.08809 60.72879 Degrees
Contaminated site radial search
Search for an address or locate on map
Hamilton Blvd, Whitehorse, Yukon, Y1A
Show results within (Meters)
450
0
2500
Contaminated Sites Information
Approximate Distance: 164.3 m
Valleyview playground
Site Name Valleyview playground
Classification Remediated
Contaminants of Concern PHCs
Civic Address Valleyview Drive, Whitehorse
Community Whitehorse
Legal Address Lot 66 Valleyview Subdivision
CLSR 76832
LTO 95-12
Parcel ID 8,034,087

APPENDIX G

ENVIRONMENT AND CLIMATE CHANGE CANADA SPILLS AND CONTAMINATED SITES REGISTRY SEARCH RESULTS

Environment and Climate Change Canada | Environnement et Changement climatique Canada

9th Floor, Place Vincent Massey Annex
351 Saint-Joseph Blvd.
Gatineau, Québec K1A 0H3

Your File Votre référence
EA2026-0162340

Our File Notre reference
E-2025-01278

March 11, 2026

Mr. Keegan Kim
Tetra Tech Canada Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7

Dear Mr. Kim,

This is to acknowledge receipt on March 11, 2026 of your request under the *Access to Information Act* for:

"OWNER: Yukon Government

PROPERTY: Unsurveyed Yukon Government, Lot across from the Canada Games Centre • No other legal description as it is unsurveyed. *See the map showing site location.

To the purpose of a Phase I Environmental Site Assessment on the Property, we request information pertaining to the environmental quality of the site from historical to present. Records of spills, environmental assessments, cleanups, above ground or underground tanks, and anything that could affect the environmental quality of the soil or water at the site.

Authorization: {Miguel MARQUES}"

Please note that this also serves as a receipt for the $5.00 application fee.

We have started processing your request and will contact you as soon as possible. Please find enclosed our principles for assisting your request.

If you have any questions regarding this request, please do not hesitate to contact me by email at *alix.malisani@ec.gc.ca*. Please quote the above file number on all future correspondence concerning this request.

.../2

Canada

Yours sincerely,

(Signed) by:

Alix Malisani
Access to Information and Privacy Division

Enclosure

Our principles for assisting your request

In processing your request under the *Access to Information Act* or *Privacy Act*, we will:

1. Process your request without regard to your identity.

2. Offer reasonable assistance throughout the request process.

3. Provide information on the *Access to Information Act* or *Privacy Act*, including information on the processing of your request and your right to complain to the Information Commissioner of Canada or Privacy Commissioner of Canada.

4. Inform you as appropriate and without undue delay when your request needs to be clarified.

5. Make every reasonable effort to locate and retrieve the requested records/personal information under the control of Environment and Climate Change Canada.

6. Apply limited and specific exemptions to the requested records/personal information.

7. Provide accurate and complete responses.

8. Provide timely access to the requested information/personal information.

9. Provide records/personal information in the format and official language requested, as appropriate.

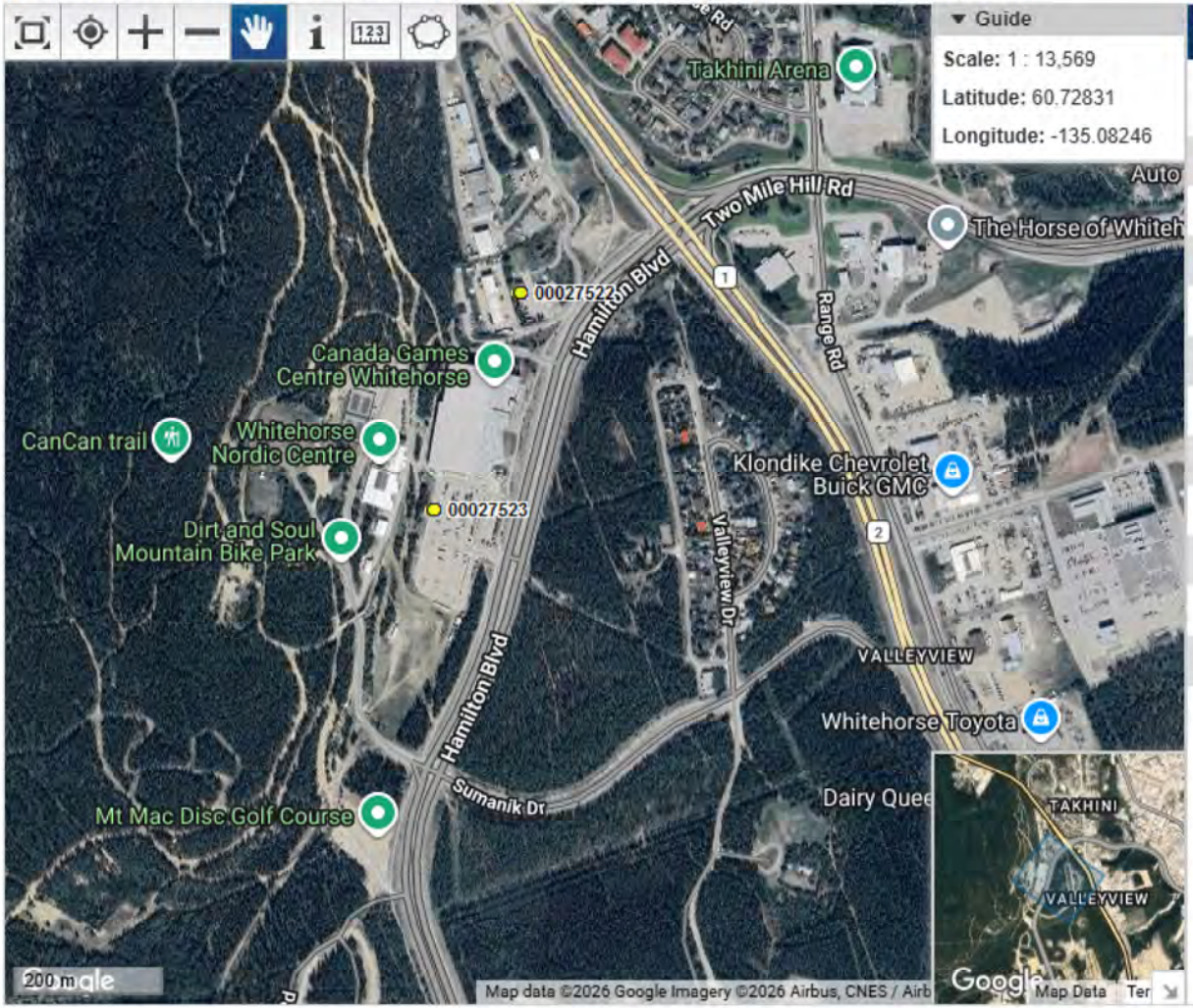
10. Provide an appropriate location to examine the requested information/personal information.

APPENDIX H

FEDERAL CONTAMINATED SITES INVENTORY RESULTS

DFRP/FCSI - Map Navigator

Area: Whitehorse **Content:** 0 Federal Property, 0 Federal Building, 2 Federal Contaminated Sites



Layers | Search | Information

Control layers and labels visibility with the checkboxes. Control the base map with the select list. Actions will automatically update the map.

	Visibility	Labels
Federal Properties	☐	☐
Federal Buildings	☐	☐
Active Federal Contaminated Sites	☑ [1]	☑
Suspected Federal Contaminated Sites	☑ [1]	☑
Closed Federal Contaminated Sites	☑ [1]	☑
Economic Region	☐	☐
Census Divisions	☐	☐
Census Subdivisions	☐	☐
Metropolitan Areas	☐	☐
Federal Electoral Districts	☐	☐
Treaty Areas	☐	☐

Base map: Google Hybrid [2]

[1] Suspected Active Closed

[2] Google base maps are only available when the map scale is smaller than 1:60,000.

APPENDIX I

TETRA TECH'S LETTER OF RELIANCE POLICY

A Letter of Reliance is a document provided by Tetra Tech to confirm and extend reliance on an Environmental Site Assessment (ESA) report to a party other than the original client. A Letter of Reliance is typically requested prior to a property transaction by a potential buyer or financer of a property. Tetra Tech's standard conditions for providing a Letter of Reliance are provided below.

- Written permission from the original client must be provided to Tetra Tech before a Letter of Reliance will be prepared. A Letter of Reliance will only be provided to a specific Third Party (e.g. no "open" Letter of Reliance will be issued) and will not be issued to a Third Party more than twice removed (e.g., seller is original client and Letter of Reliance is provided to the lender of the buyer). The format and content of the letter will be determined exclusively at the discretion of Tetra Tech.
- A Letter of Reliance will only be provided for ESA reports issued in the last year (365 days). After this period a new evaluation must be undertaken, and a new or updated report produced at the client's or third party's expense.
- A minimum $500 fee will be charged for each Letter of Reliance. This amount may be increased based on the potential liability and complexity associated with the site and investigation. This fee along with any outstanding charges must be paid in full prior to issuing the Letter of Reliance.
- The Letter of Reliance will be subject to Tetra Tech's standard terms and conditions and limitation of liability (for damages) will be limited to the same dollar amount outlined in the executed Service Agreement.

Non-standard terms and conditions for the Letter of Reliance should be presented to the Tetra Tech Project Manager for consideration prior to the commencement of the ESA. An example Letter of Reliance can be provided at the client's request.

Notwithstanding any of the conditions above, Tetra Tech may, at its sole discretion and without providing justification, refuse to provide a Letter of Reliance.

12.5 GEOTECHNICAL REPORT

TETRA TECH

March 31, 2026

ISSUED FOR REVIEW
FILE: 704-ENG.WARC04470-03
Via Email: jack@kza.yk.ca

Kobayashi + Zedda Architects
26-1114 Front Street
Whitehorse, YT Y1A1A3

Attention: Jack Kobayashi, Architect

Subject: EWES – Preliminary Geotechnical Site Evaluations
Whitehorse, Yukon

This 'Issued for Review' document is provided solely for the purpose of client review and presents our interim findings and recommendations to date. Our usable findings and recommendations are provided only through an 'Issued for Use' document, which will be issued subsequent to this review. Final design should not be undertaken based on the interim recommendations made herein. Once our report is issued for use, the 'Issued for Review' document should be either returned to Tetra Tech Canada Inc. (Tetra Tech) or destroyed.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Kobayashi + Zedda Architects (KZA) for the completion of a preliminary geotechnical site evaluation for three candidate locations under consideration for the construction for the new Ecole Whitehorse Elementary School (EWES) in Whitehorse, Yukon.

This report has been prepared to support KZA on selecting the preferred development by characterizing the expected geotechnical conditions at the three sites. The locations shall be referred throughout this report as Site 1 (Downtown site), Site 2 (Kopper King site), and Site 3 (Valleyview site) and are shown in Figures 1, 2 and 3.

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

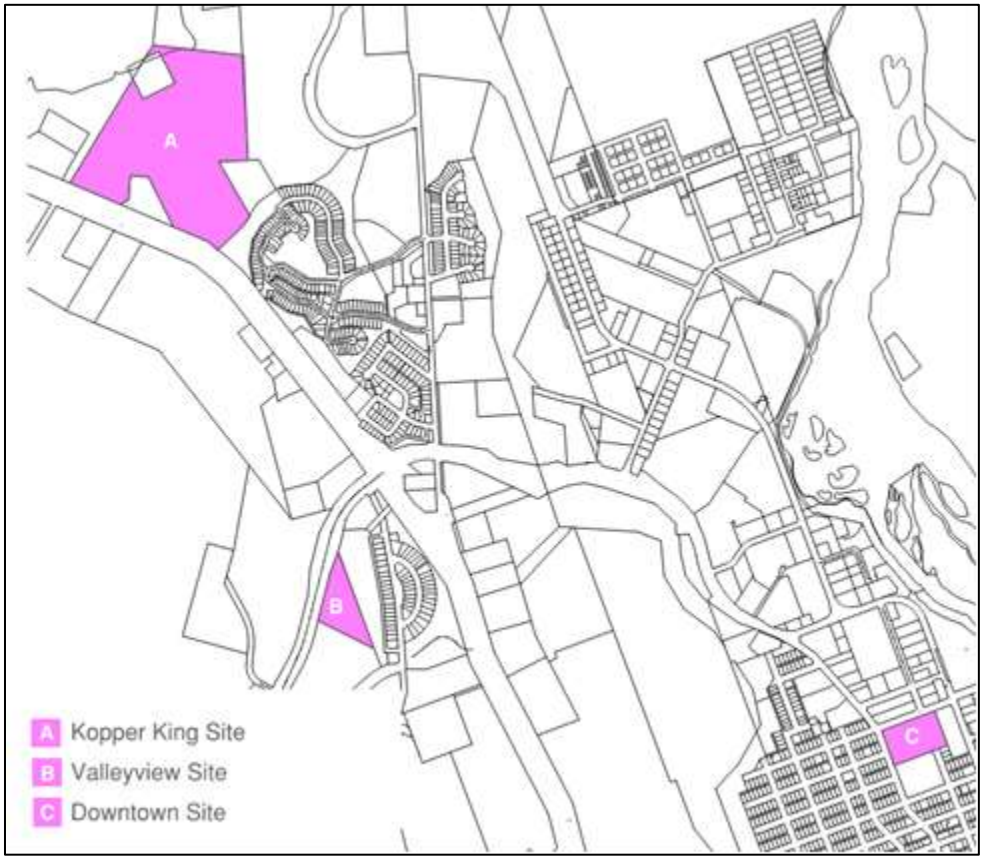


Figure 1: To scale lot sizes and locations. Figure provided by KZA.

2.0 METHODOLOGY

Tetra Tech has completed a desktop review of publicly available information including Google Earth imagery and surficial geology maps; and internal archived/historical project information including historical field investigations, and borehole & testpit logs. Based on this information, the anticipated surface and subsurface soil conditions have been assessed.

Site-specific geotechnical investigation was not completed for any of the sites for this project. Therefore, anticipated subsurface conditions at the project site are described only in general terms and should be confirmed through site-specific geotechnical evaluation(s). All descriptions and herein are based solely upon the "desktop" study. The content of this report is based on Tetra Tech's assumptions noted.

To complete this preliminary desktop geotechnical evaluation, Tetra Tech reviewed their in-house information along with the following reports:

All Sites:

Lipovsky, P.S., 2023. Surficial geology of the greater Whitehorse area, Sheet 6 (1:15 000 scale). In: Surficial geology and geo hazards of the greater Whitehorse area, Yukon Geological Survey, Open File 2023-1, 67 pages plus appendices.

Site 1:

Tetra Tech Canada Inc., (2017) Geotechnical Evaluation – Wheeler Street Reconstruction Fourth Avenue to Eighth Avenue – Whitehorse Canada, YT. Report prepared for Associated Engineering (B.C) Ltd. Issued March 2017. File number ENG.WARC03220-01.

Tetra Tech Canada Inc., (2023) Geotechnical Site Evaluation – Parking Lot, Whitehorse Motors, Whitehorse YT. Report prepared for Setplan Engineering Ltd. Issued July 2023. File number ENG.WARC04394-01

Tetra Tech Canada Inc., (2018) Geotechnical and Environmental Assessment, Alexander Street – Whitehorse, YT. Report prepared for City of Whitehorse. Issued February 2018. File number ENG.WARC03371-01

EBA, A Tetra Tech Company (2011) Black Street & 5th Avenue Reconstruction – 2011 Report submitted to Associated Engineering Ltd. Issued June 2011. EBA file number W14101546

EBA, A Tetra Tech Company (2011) Geotechnical Evaluation – Roadhouse Inn 2163 2nd Ave, Whitehorse, YT. Report prepared for Whiskey Flats Investment Corporation. Issued November 2011 EBA file number W14101629

EBA Engineering Consultants Ltd. (2002) Geotechnical Evaluation 2002 Downtown Reconstruction Phase D-2 Project. Whitehorse YT. Report prepared for Quest Engineering Group. Issued January 2002. Project No. 0201-01-15486

Site 2:

Tetra Tech EBA (2015) Geotechnical Evaluation – New Terminal Structure 91870 Alaska Highway, Whitehorse, YT. Report prepared for Manitoulin Group of Companies. Issued January 2015. File no. W14103531-01

EBA Engineering Consultant Ltd. (1991) Geotechnical Information McIntyre Creek Hydro Development Power Plant No. 3, Whitehorse YT. Report prepared for Acres International Ltd. Issued May 1991, EBA File: 0201-10601

EBA Engineering Consultant Ltd. (1992) Yukon Place Alternate Access Road, Geotechnical Investigation. Report prepared to Reid Crowther & Partners Ltd. Issued November 1992. EBA File: 0201-10895

Site 3:

EBA Engineering Consultants Ltd. Geotechnical Drilling at Proposed Recreation Complex Mount McIntyre Site Option – Whitehorse, YT. Report prepared for Florian Maurer Architect Ltd. Issued January 1998. EBA File: 0201-97- 13160

EBA Engineering Consultants Ltd. Geotechnical Evaluation Valleyview Subdivision, Whitehorse YT. Report submitted to Stanley Associated Engineering LTD. Issued March 1993. EBA File: 0201 - 11137

3.0 SITE DESCRIPTION

No on-site investigations have been conducted at the time of this report. Assumptions have been made based on high-level desktop review and should be verified with an on-site investigation should be conducted later in the project.

3.1 Site 1

3.1.1 Site Location

Site 1, present site of the EWES, is located in downtown Whitehorse between 4th Avenue to the west, 3rd Avenue to the east, Black street to the south and independent grocers to the north. The site is square in shape and covers approximately 1.4 HA of area (Figure 2).

3.1.2 Surficial Geology

A map of the surficial geology of Whitehorse was compiled by Panya S. Lipovsky (2023) of the Yukon Geological Survey. The surficial geology indicates the area is anthropogenic, environment changed by human activity over fluvial deposit. Fluvial deposits generally consist of gravel and/or sand and/or silt and rarely clay. Fluvial deposits in the large valley bottoms typically have a sandy texture because of the abundance of reworked glaciolacustrine sediment.

3.1.3 Anticipated Surface Conditions

Site 1 is the current location of the existing EWES. The existing school was built in 1950 and is considered to be in poor condition and is unable to meet modern educational, accessibility, and safety standards. The building is a multistory structure with a basement. The lot is flat with a field in the east and paved section throughout.

3.1.4 Anticipated Subsurface Conditions

After reviewing the historical borehole and test pitting records of the surrounding area, the anticipated soil conditions at Site 1 are expected to be a combination of both uncontrolled fill and fluvial gravel overlying lacustrine sand and silt. The uncontrolled fill and fluvial gravel is expected to be between 0.5 m and 3.0 m based off historical building methods in Whitehorse.

The underlying lacustrine deposit is expected to consist predominantly of fine-grained sand and silt. The moisture content of this material is expected to be between 15% and 27%. Plasticity testing from the surrounding area have been found to be low-plastic silts (USCS classification “ML”). This layer has been seen extending to borehole termination depths up to 6 m deep.

3.1.5 Bedrock

No bedrock has been encountered in any of the surrounding boreholes.

3.1.6 Anticipated Groundwater Conditions

The ground water table has been encountered at 3.5 metres below ground surface (m b.g.s.) in December 1998 (EBA, 1998).

3.1.7 Anticipated Permafrost Conditions

No permafrost was encountered in any of the surrounding boreholes. Seasonal frost penetration can be expected to reach upwards of 3.0 m in areas that are cleared of snow.

3.1.8 Seismic Classification and Seismic Hazard

The seismic site designation for seismic design can be assigned according to Table 4.1.8.4-A of the 2025 Edition of the National Building Code of Canada (NBCC), published by the national Research Council of Canada (NRCC). The seismic site designation is based on the shear stiffness of the upper 40 m of the soil profile at the site, as described in Sentence 4.1.8.4.(2) of the NBCC. Shear stiffness is typically determined using the average shear wave velocity (V_{s30}). Where V_{s30} calculated from in situ measurements is not available, the site designation can be based on a site classification determined using the energy-corrected average standard penetration resistance or the average undrained shear strength. None of these parameters have been measured for this site. Based on the soil conditions observed in the surrounding area Tetra Tech has used a site designation of X_D (Table 4.1.8.4.-B NBCC 2025) for this preliminary assessment. Seismic classification should be reassessed once the site has been selected and a geotechnical site investigation has been completed.

Natural Resources Canada (NRC) provides interpolated seismic hazard values for use with the 2025 NBCC. Table 1 below shows the 2%-in-50-year seismic hazard values obtained from NRC's online seismic hazard calculator (NRC 2026).

Table 1: NBC 2025 - 2%/50 Years (0.000404 per annum) Probability

$S_a(0.2, X_D)$	$S_a(0.5, X_D)$	$S_a(1.0, X_D)$	$S_a(2.0, X_D)$	$S_a(5.0, X_D)$	$S_a(10.0, X_D)$	$PGA(X_D)$	$PGV(X_D)$
0.516	0.56	0.392	0.237	0.0958	0.0526	0.2	0.321

The log-log interpolated 2%/50 year $S_a(4.0, X_D)$ value is : **0.1194**

3.1.9 Geotechnical Constraints and Hazards

Site 1 is located on a previously developed lot with the structure still present and being used. Tetra Tech has no records of the constitution of the foundation system and so the entire site is considered to be uncontrolled fill. This layer of uncontrolled fill can be expected to be up to 3.0 m thick. It is possible that some of the uncontrolled fill will be reusable; however, this will need to be confirmed with laboratory testing. Additionally, sands and silts with high moisture content can be susceptible to liquefaction, particularly with structures with high loads. Historically the underlying fluvial deposit (sand and silt) has been found to be over consolidated in downtown Whitehorse; therefore, liquefaction is not considered a high risk. Liquefaction is still considered a possibility at this site, and a site-specific investigation is recommended to quantify the risk.

3.2 Site 2

3.2.1 Site Location

Site 2 is located on the north side of the Alaska Highway across from an area of existing development. This lot is substantially larger in size at approximately 25 HA and is an irregular shape (Figure 3).

3.2.2 Surficial Geology

Based off surficial geology mapping from Panya S. Lipovsky (2023), the site is located on a glaciofluvial deposit. Glaciofluvial deposits are formed from sediments transported and deposited by meltwater streams from glaciers and ice sheets. These deposits are generally stratified, well sorted and are typically dominated by sand and gravel with grains that tend to be moderately rounded.

3.2.3 Anticipated Surface Conditions

Site 2 is undeveloped and forested with walking and ATV trails and is used by the public as a disc golf course. The site is generally sloped to the north with a stream running along the northwest side of the site. Hummocks can be seen throughout the east of the site, with a low-lying depression in the southeast corner of the lot.

3.2.4 Anticipated Subsurface Conditions

After reviewing the historical borehole and test pitting records of the surrounding area, the anticipated soil conditions at Site 2 are expected to be a layer of organics overlying silty sand (SM) overlying sand and gravel (SW). The organic layer is expected to be approximately 0.5 m thick and be composed of forest mat.

The silty sand layer was found to reach approximately 1.5 m b.g.s. on the west side of the lot with high moisture content. These boreholes were located close to the stream flowing though the lot. The silty sand layer is expected to be thicker in hummocky areas of the lot, in the low-lying hummocky area in the east of the lot this layer was found at termination depth of the borehole at 6.0 m b.g.s.

Gravel and sand is expected to be underlying the silty sand layer; this layer was at termination depth of a borehole in west side of the lot at 19.8 m b.g.s. In adjacent sites south of the Alaska highway this material was seen directly underlying the gravel fill used for the development.

3.2.5 Bedrock

Bedrock has not been encountered at this site.

3.2.6 Anticipated Groundwater Conditions

Groundwater depth has not been confirmed at this site; however, a stream and wetland are located to the northwest of the site and it can be expected that groundwater depths will be shallow in this area.

3.2.7 Anticipated Permafrost Conditions

No permafrost was encountered in any of the surrounding boreholes. Seasonal frost penetration can be expected to reach upwards of 3.0 m in areas that are cleared of snow.

3.2.8 Seismic Classification

The seismic site designation for seismic design can be assigned according to Table 4.1.8.4-A of the 2025 Edition of the National Building Code of Canada (NBCC), published by the national Research Council of Canada (NRCC). The seismic site designation is based on the shear stiffness of the upper 40 m of the soil profile at the site, as described in Sentence 4.1.8.4.(2) of the NBCC. Shear stiffness is typically determined using the average shear wave velocity (V_{s30}). Where V_{s30} calculated from in situ measurements is not available, the site designation can be based on a site classification determined using the energy-corrected average standard penetration resistance or the average undrained shear strength. None of these parameters have been measured for this site. Based on the soil conditions observed in the surrounding area Tetra Tech has used a site designation of X_D (Table 4.1.8.4.-B NBCC 2025) for this preliminary assessment. Seismic classification should be reassessed once the site has been selected and a geotechnical site investigation has been completed.

Natural Resources Canada (NRC) provides interpolated seismic hazard values for use with the 2025 NBCC. Table 2 below shows the 2%-in-50-year seismic hazard values obtained from NRC's online seismic hazard calculator (NRC 2026)

Table 2: NBC 2025 - 2%/50 Years (0.000404 per annum) Probability

$S_a(0.2, X_D)$	$S_a(0.5, X_D)$	$S_a(1.0, X_D)$	$S_a(2.0, X_D)$	$S_a(5.0, X_D)$	$S_a(10.0, X_D)$	$PGA(X_D)$	$PGV(X_D)$
0.517	0.563	0.394	0.238	0.0961	0.0527	0.201	0.322

The log-log interpolated 2%/50 year $S_a(4.0, X_D)$ value is : **0.1199**

3.2.9 Geotechnical Constraints and Hazards

Site 2 is an undeveloped site with minimal geotechnical subsurface exploration. Tree clearing and subsurface geotechnical site investigation will be required to develop this site. Site 2 has some topographic variation throughout the site with the highest elevation being approximately 722 m above sea level. adjacent to the Alaska Highway to approximately 705 m above sea level at its lowest point on the north edge of the site, this should be kept in the context that this site is over 20 times larger than the other sites with the highest and lowest points being approximately 400 m away from each other. A stream is also present on the northwest edge of the site and would inform the suitable locations for the structure on the lot.

3.3 Site 3

Site Location

Site 3 is located on the east side of Hamilton Blvd across the street from the Canada Games Center and west of the Valleyview subdivision. The lot is triangular and covers approximately 2.4 HA of area (Figure 4).

3.3.1 Surficial Geology

Based off surficial geology mapping from Panya S. Lipovsky (2023), the site is located on a glaciofluvial deposit. Glaciofluvial deposits are formed from sediments transported and deposited by meltwater streams from glaciers and ice sheets. These deposits are generally stratified, well sorted and are typically dominated by sand and gravel with grains that tend to be moderately rounded.

3.3.2 Anticipated Surface Conditions

Site 3 is undeveloped and forested with walking trails and is sloped to the northeast.

3.3.3 Anticipated Subsurface Conditions

After reviewing the historical borehole and test pitting records of the surrounding area, the anticipated soil conditions at Site 3 are expected to be a layer of organics overlying sand. This sand is expected to range from silty sand to sand and gravel with some areas of sandy gravel. This deposit has been described as very loose and extends to the termination depth of all but one borehole in the area to a depth of 7.6 m b.g.s. Soft low plasticity silt with a moisture content of 22% was encountered near the intersection of Hamilton Blvd and the Alaska Highway 3.5 m that extended to the termination depth of the borehole at 4.6 m.

3.3.4 Bedrock

Bedrock has not been encountered at this site.

3.3.5 Anticipated Groundwater Conditions

Groundwater has not been encountered at this site.

3.3.6 Anticipated Permafrost Conditions

No permafrost was encountered in any of the surrounding boreholes. Seasonal frost penetration can be expected to reach upwards of 3.0 m in areas that are cleared of snow.

3.3.7 Seismic Classification

The seismic site designation for seismic design can be assigned according to Table 4.1.8.4-A of the 2025 Edition of the National Building Code of Canada (NBCC), published by the national Research Council of Canada (NRCC). The seismic site designation is based on the shear stiffness of the upper 40 m of the soil profile at the site, as described in Sentence 4.1.8.4.(2) of the NBCC. Shear stiffness is typically determined using the average shear wave velocity (V_{s30}). Where V_{s30} calculated from in situ measurements is not available, the site designation can be based on a site classification determined using the energy-corrected average standard penetration resistance or the average undrained shear strength. None of these parameters have been measured for this site. Based on the soil conditions observed in the surrounding area Tetra Tech has used a site designation of X_E (Table 4.1.8.4.-B NBCC 2025) for this preliminary assessment. Seismic classification should be reassessed once the site has been selected and a geotechnical site investigation has been completed.

Natural Resources Canada (NRC) provides interpolated seismic hazard values for use with the 2025 NBCC. Table 3 below shows the 2%-in-50-year seismic hazard values obtained from NRC's online seismic hazard calculator (NRC 2026).

Table 3: NBC 2025 - 2%/50 Years (0.000404 per annum) Probability

$S_a(0.2, X_E)$	$S_a(0.5, X_E)$	$S_a(1.0, X_E)$	$S_a(2.0, X_E)$	$S_a(5.0, X_E)$	$S_a(10.0, X_E)$	$PGA(X_E)$	$PGV(X_E)$
0.538	0.651	0.479	0.304	0.121	0.0635	0.209	0.374

The log-log interpolated 2%/50 year $S_a(4.0, X_D)$ value is : **0.1514**

3.3.8 Geotechnical Constraints and Hazards

Site 3 is an undeveloped site with minimal geotechnical subsurface exploration. Tree clearing and subsurface geotechnical site investigation will be required to develop this site. This site is located on a slope and is suspected to be underlined by loose sand. When loose sand is present, foundation liquefaction is always a concern. If loose sand is confirmed at this site, it could complicate the possible foundation design options for the development of the structure.

4.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Kobayashi + Zedda Architects 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 Kobayashi + Zedda Architects, 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.

5.0 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.

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FIGURES

Figure 2 Site 1, located at Lot 5, downtown Whitehorse. Approximately 1.7 HA in area.

Figure 3 Site 2, located at Lot 435, across from the Kopper King, Whitehorse. Approximately 25.0 HA in area.

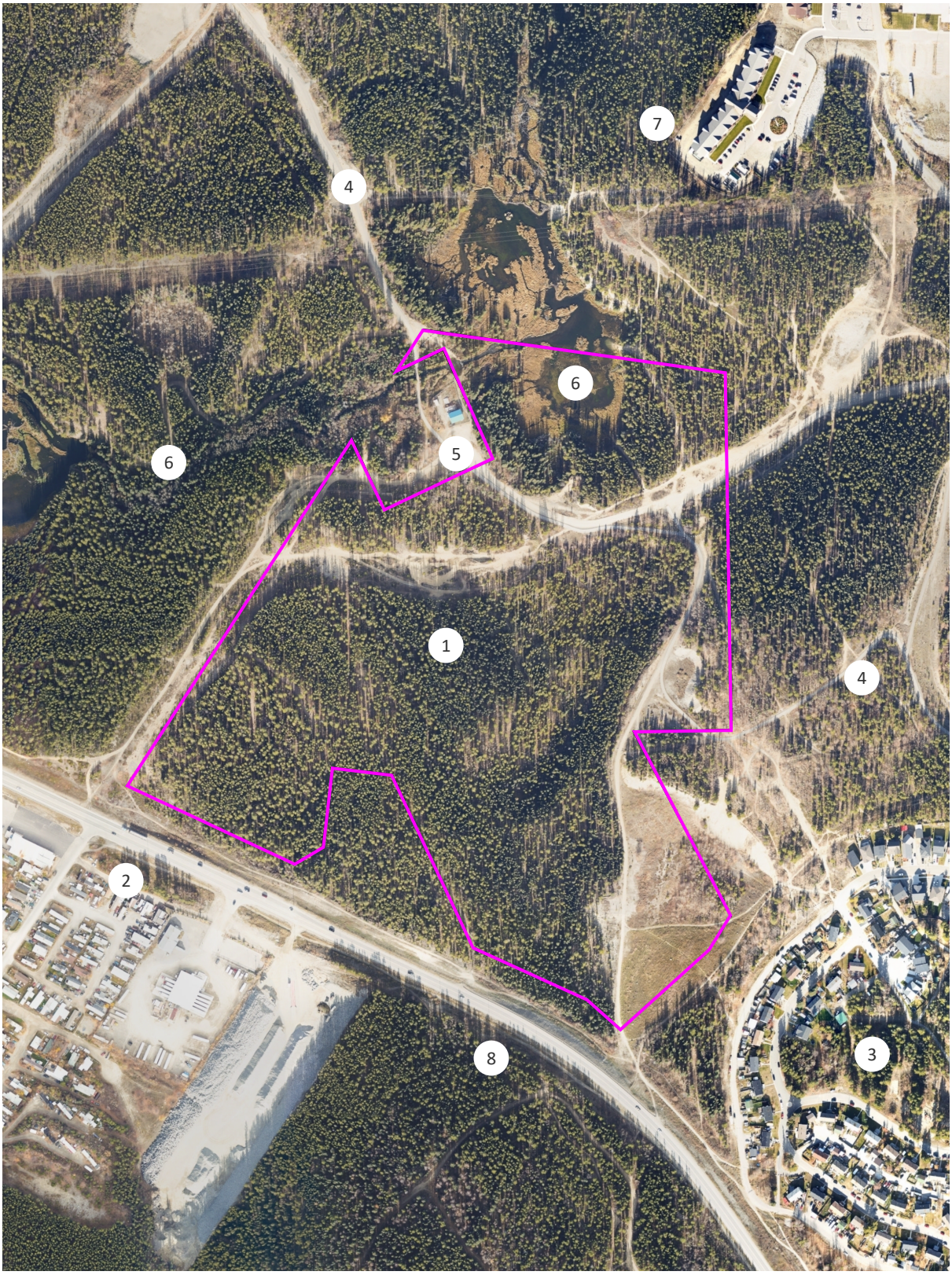
Figure 4 Site 3, unsurveyed YG lot across from the Canada Games Center, Whitehorse. Approximately 2.4 HA in area.



EWES SITE ANALYSIS

DOWNTOWN SITE AIR PHOTO NTS

1 ECOLE WHITEHORSE ELEMENTARY SCHOOL
2 4TH AVENUE
3 BLACK STREET
4 3RD AVENUE
5 WHITEHORSE MOTORS
6 WHITEHORSE EMERGENCY SHELTER
7 QWANLIN MALL
8 YUKON CENTRE MALL
9 NVD PLACE
10 NORTHLIGHT INNOVATION



EWES SITE ANALYSIS

KOPPER KING SITE AERIAL PHOTO NTS

1 LOT 435
2 KOPPER KING
3 TAKHINI NORTH NEIGHBOURHOOD
4 WALKING TRAILS
5 McINTYRE PUMP HOUSE
6 McINTYRE CREEK
7 YUKON UNIVERSITY RESIDENCE
8 ALASKA HIGHWAY



EWES SITE ANALYSIS
VALLEYVIEW SITE AERIAL PHOTO NTS

1 UNSURVEYED LOT VALLEYVIEW
2 VALLEYVIEW NEIGHBOURHOOD
3 SUMANIK DRIVE INTERSECTION
4 CANADA GAMES CENTRE
5 MT McINTYRE RECREATION CENTRE
6 ALASKA HIGHWAY INTERSECTION
7 ALASKA HIGHWAY
8 HAMILTON BOULEVARD
9 CANADA POST
10 RANGE ROAD/TWO MILE HILL INTERSECTION
11 RANGE ROAD/ALASKA HIGHWAY INTERSECTION
12 TAKHINI EAST NEIGHBOURHOOD

APPENDIX A

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.

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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.

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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.