



North American Tungsten Corporation Ltd.

# MACTUNG PROJECT 2008 ARCHAEOLOGICAL INVESTIGATIONS

Yukon Archaeological Sites Regulations Permit 08-02ASR

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October 15, 2008

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# **2008 MACTUNG PROJECT ARCHAEOLOGICAL INVESTIGATIONS**

Yukon Archaeological Sites Regulations Permit 08-02ASR

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## 1. INTRODUCTION

At the request of EBA Engineering Consultants Ltd., on behalf of North American Tungsten Corporation Ltd., an archaeological assessment of potential development areas for the MacTung project was conducted between July 18 and July 23, 2008. The project is located north of Macmillan Pass in the Selwyn Mountains in the eastern Yukon. The assessment was directed by Brian Apland of Points West Heritage Consulting Ltd. (Points West) working under authority of a Yukon Sites Regulation Class 2 permit (Permit 08-02ASR). Brian was assisted by Bob Powell of Points West, and Gordon Etzel of the Ross River Dena Council.

The primary objective of the August 2008 work was to conduct an archaeological overview and preliminary inventory and site assessment of developments associated with the proposed MacTung mine identified subsequent to the 2007 study undertaken by Points West (Apland 2007). These developments included: an access road from Macmillan Pass to the mine site; a water pumping station on a major southern tributary of the Hess River; and a proposed extension to the Macmillan Pass airfield.

One archaeological site (KgTg-3) was encountered in Macmillan Pass on a gravel knoll about 250 m east of the South Macmillan River and adjacent to an existing exploration road. The site was evidenced by a single large, grey chert flake with possible edge retouch, and a possible hornfels core. No other archaeological sites were encountered along the proposed road alignments or the location of the water pumping station.

## 2. PROJECT DESCRIPTION AND STUDY AREA BACKGROUND

The MacTung mine property is located in the Selwyn Mountains of Yukon near the Yukon/NWT border about 8 km northwest of Macmillan Pass. Macmillan Pass is situated along the historic Canol Road in the east-central portion of Yukon approximately 400 km (250 miles) from Ross River.

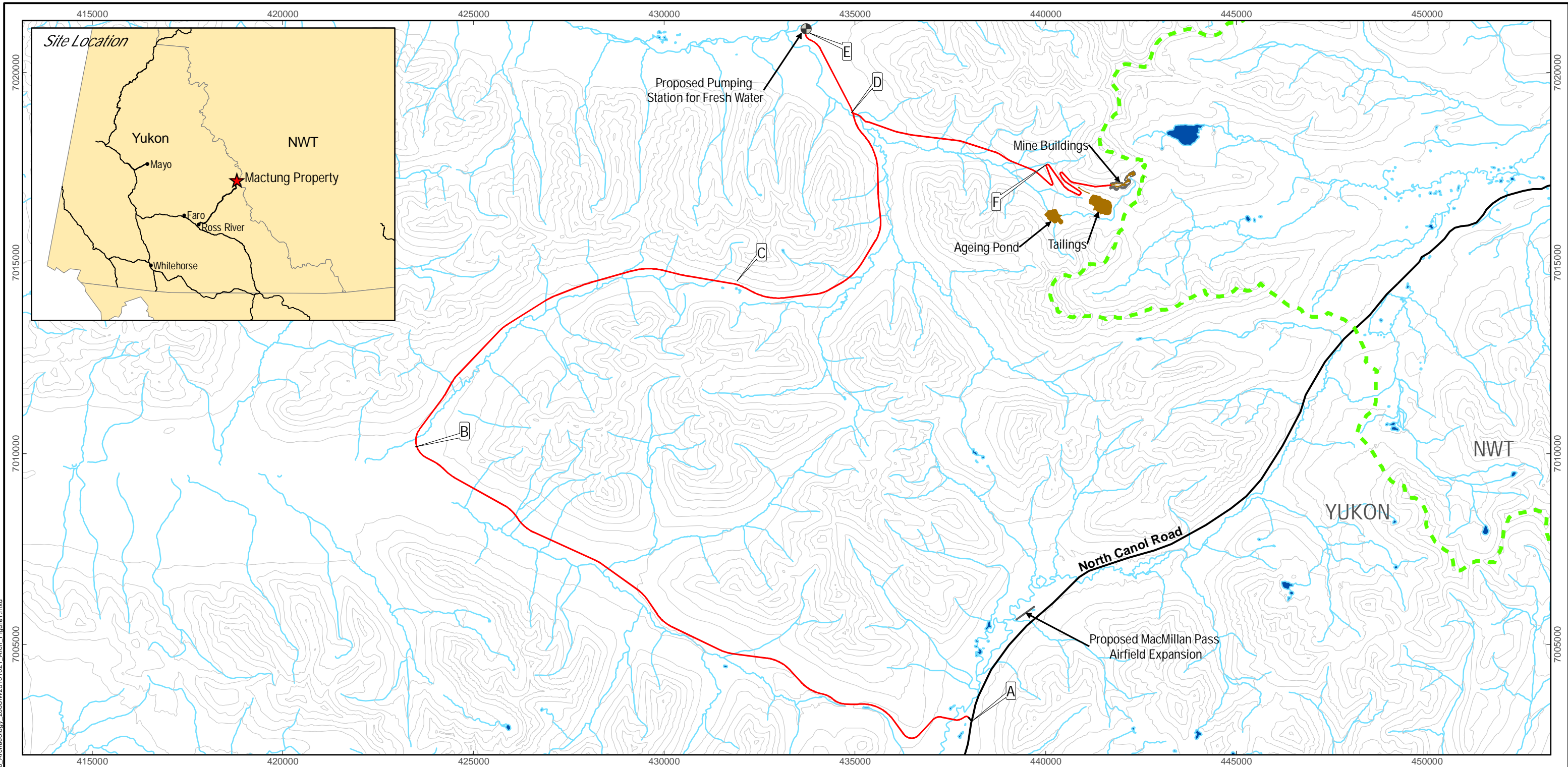
Details of the MacTung mine site and associated infrastructure, as well as the study area have been previously described in the 2006 and 2007 assessment reports, (Bussey 2007, Apland 2007) and will not be repeated here. The following description will focus only on those development components proposed subsequent to that study and offer only a brief summary of the biophysical and cultural background of the area.

### 2.1. *Project Description*

A new mine access is proposed to begin from the North Canol Road approximately 3 km south of the Macmillan Pass airfield (Node A, Figure 1) and follow a series of consecutive valleys to the west/northwest for approximately 15 km (Node B, Figure 1) then turn northeast to a low divide (Node C, Figure 1). Descending eastward from the divide, the alignment bends northward to a major southern tributary of the Hess River where a fresh water pumping station is proposed (Node E, Figure 1). Access to the mine site branches east-southeastward approximately 2.5 km south of the proposed pumping station (Node D, Figure 1) and joins the existing access trail near the mine site (Node F Figure 1).

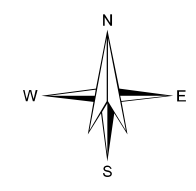
Additionally, at the Macmillan Pass Airfield, an extension of the existing runway off the northeast end for approximately 300 metres has been proposed (Figure 1).





**LEGEND**

Proposed Access Road	Contours (100m)
NWT - Yukon Border	Watercourse
Existing Road	Waterbody
Runway	Reference Node



MACTUNG			
Proposed Site Layout and Access Roads			
PROJECTION UTM Zone 9	DATUM NAD83		
Scale: 1:100,000			
FILE NO. W23101110_Arch_Figure1.mxd			
PROJECT NO. W23101110.004	DWN MEZ	CKD BA	REV 0
OFFICE EBA-VANC	DATE October 22, 2008		
			Figure 1

**NOTES**  
Base data source: Wardrop

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## 2.2. *Biophysical Summary*

The region is characterized by the rugged terrain of the Mackenzie Mountains along the Yukon/Northwest Territories border. Considered a northern extension of the Rocky Mountains, the region includes some very high peaks. Climatic conditions and vegetation vary with elevation in these alpine and sub alpine open woodland zones. Barren talus slopes are also evident. The region was glaciated during the last ice advance and numerous glacial features have been identified. Permafrost is discontinuous (Environment Canada 2000).

EBA has conducted environmental baseline studies for the MacTung Project since 2005. Those studies have confirmed that the primary large mammal species in the areas include moose, woodland caribou, Dall's sheep, and grizzly bear. All have been observed in the valleys and alpine areas where the new developments are proposed (EBA 2008).

The other wildlife species observed in the study area include the Common Raven, Ptarmigan, wolf, wolverine, red fox, marmot, ground squirrel and beaver. Fish species of potential significance to past peoples include Grayling and Dolly Varden in the upper Hess River drainage.

## 2.3. *Cultural Summary*

Ethnographically, the areas around Macmillan Pass were utilized by the Upper Pelly Indians (Yukon), associated with the Kaska, and the Mountain Indians (NWT). This area would have only been used periodically by either group. The Mountain Indians originally inhabited the eastern slopes of the Mackenzie Mountains east to the west side of the Mackenzie River. Most of the Upper Pelly groups were massacred by the Mountain Indians around 1886, likely prompted by competition for furs. By the 1900s, the Mountain Indians were hunting, trapping and fishing in the upper Hess, North and South Macmillan and Ross rivers. They utilized a number of trails to access Yukon posts for trade, one of which later became the Canol Road (Greer 1982).

The reader is referred to Denniston (1966), Gillespie (1981), Greer (1982), Honigmann (1964, 1981) and McClelland and Denniston (1981) for more detailed information on the Upper Pelly and Mountain Indians. As Greer (1982) indicates, there is little information on the Upper Pelly and virtually nothing is known about the hunting and fishing practices that may have been carried out in the Macmillan Pass area.

Construction of the Canol Road (for Canadian Oil) and pipeline resulted in an influx of people and money. It was undertaken by the United States army during World War II as a response to the Japanese attack on Pearl Harbour in December 1941. The objective was to ensure a supply of oil from Norman Wells for the Pacific forces. The Canol Road runs from Norman Wells in the Northwest Territories, to Whitehorse in the Yukon, via Ross River. The section from Macmillan Pass to Whitehorse, known as the North Canol Road is still maintained today and is responsible for opening up the area to increased use. Current activities in the Macmillan Pass area include hunting, both individual and with guide outfitters, mineral exploration and recreation. Several sites where vehicles and equipment relating to the construction years were left parked beside the North Canol Road still remain today, and are commemorated as heritage sites.

#### **2.4. *Archaeological Background***

Very few archaeological investigations have been conducted in the Macmillan Pass region of the Mackenzie Mountains. Prior to the 2006 preliminary work done by Points West, four previous archaeological studies were conducted in the general vicinity. They included a 1981 impact assessment of the North Canol Road and regional archaeological inventory of the Yukon Macmillan Pass area, both reported on by Greer (1982); a 1983 inventory of the MacTung project (Van Dyke 1984); and an archaeological and historic assessment of the NWT portion of the Canol Road in 1989 (Hanks et. al. 1993).

The nearest Yukon sites to the MacTung project area are KgTg-1 and KgTg-2 on the upper portion of the South Macmillan River. KgTg-1 is located on a knoll within Macmillan Pass. The site has been interpreted as a possible small hunting camp and/or a lookout and chipping station and testing produced a lanceolate point base and 262 medium and small flakes and fragments made up of four lithic materials: black and various grey cherts and/or grey silicified sedimentary materials (Greer 1982:42). The site was revisited during the 2008 study and found to still be intact (Photo 1, 2).

Further south is KgTg-2 on the edge of a terrace overlooking the river. A total of 29 lithic pieces were recovered, including large, medium and small sized flakes, a possible exhausted core and blocky pieces of core shatter. Only one material type is represented, a pale green chert. This site is interpreted as a possible hunting camp and/or lookout and chipping station (Greer 1982:42).

The nearest NWT sites include KhTg-1 and KhTf-1. KhTg-1 is a small site on a knoll-like feature on the north side of the Dale Creek valley just east of the MacTung mine site. Subsurface testing in 2007 resulted in the recovery of only two lithic pieces augmenting three flakes recovered in 1983 (Apland 2007). This site should also be interpreted as a possible small hunting camp and/or lookout.

KhTf-1 is approximately 15 km east of the Yukon/NWT border on the North Canol Road. It is a traditional site consisting of broken Athapaskan-type snow shoes representing recent Dene use of the region. The site is located on an esker-like feature on the south side of the Tsichu River (Hanks et. al. 1993).

### **3. METHODOLOGY – 2008 ARCHAEOLOGICAL INVESTIGATIONS**

#### **3.1. *Aerial Reconnaissance***

Aerial reconnaissance to assess archaeological potential involved a low and slow helicopter flight over the entire proposed road alignments to the mine site and pumping station locality. All landforms within the alignments, judged to have moderate or higher potential, were noted and more closely assessed on the ground.

#### **3.2. *Ground Reconnaissance***

Ground reconnaissance involved foot traverses generally less than 5 m apart on narrow ridges and from 5 m to 10 m apart on wider benches or ridges. In areas where vegetation was relatively heavy, shovel tests were excavated at intervals ranging from 10 m to 20 m. Shovel tests were approximately 50 cm by 50 cm and excavated in 5 cm levels to bedrock or parent gravels with all deposits hand and/or trowel sorted. All shovel test locations were recorded using a handheld Garmin GPS 12XL, recorded, and photographed.



#### **4. RESULTS OF ARCHAEOLOGICAL ASSESSMENT**

All landforms considered to have sufficient potential to justify ground reconnaissance were inspected. For a discussion of archaeological potential determination, the reader is referred to the report on the 2006 investigations (Bussey 2006:10-11). The following discusses the areas examined and the results of the archaeological investigations.

##### **4.1. *Areas Examined During Ground Reconnaissance***

###### **4.1.1. Pumping Station**

The proposed location for the fresh water pumping station is on the south bank of a major southern tributary of the Hess River (Photo 3). The terrain at the river bank is very uneven, poorly drained and of low archaeological potential. However, immediately backing the pumping station locality, there are two higher, better drained gravel terraces considered to be of moderate potential which were investigated.

###### **4.1.2. Access Roads**

Much of the road alignment is situated on poorly drained side slopes and considered to have low archaeological potential (Photo 4). However, there were a number of localized landforms noted during the aerial reconnaissance that were assessed to be of moderate potential and were investigated on the ground. These included:

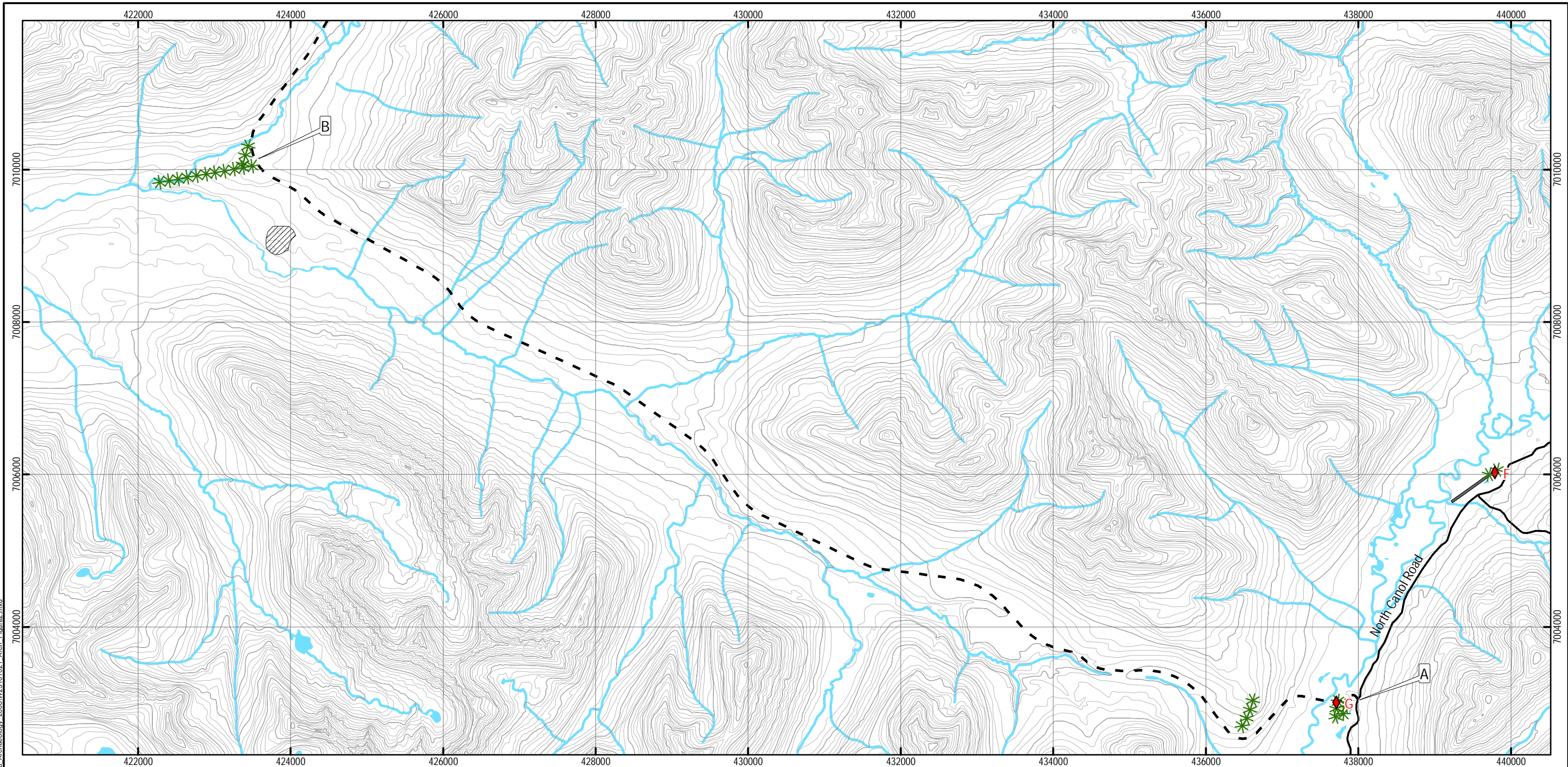
- A small complex of knolls between Node A (Figure 2a) and the South Macmillan River;
- A series of high ridges above Macmillan Pass about 2 km west of Node A (Figure 2a);
- An east-west trending ridge at the confluence of two major streams at Node B (Figure 2);
- A gravel ridge west of Node C (Figure 2b) at the west end of the low divide between two drainages;
- A series of gravel ridges at various locations between Nodes C and D (Figure 2b);
- A high terrace south of Node D (Figure 2b) and on the west side of the creek; and
- A well defined gravel ridge east of Node D and on the east side of the creek (Figure 2b).

In addition, a low flat terrace south of the pumping station locality was walked.

###### **4.1.3. Macmillan Pass Airfield**

The proposed extension to the Macmillan Pass Airfield will run off the northeast end of the strip, into low flat, poorly drained boggy terrain (Photo 5). A raised gravel knoll feature along the southeast corner of the current strip was assessed as moderate potential for archaeological sites and was therefore investigated.





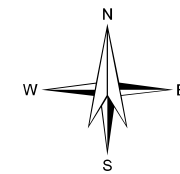
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**LEGEND**

- Archaeological Shovel Test (ST) Locations
- Areas of Archaeological Ground Reconnaissance
- Proposed Access Road
- Existing Roads
- Runway
- Areas of Moderate Potential
- Contours (20m)
- Contours (100m)
- Watercourse
- Waterbody
- Reference node

ST	NOTES
F	4 ST judgementally placed
G	8 ST judgementally placed

ST = Shovel Test



**MACTUNG**

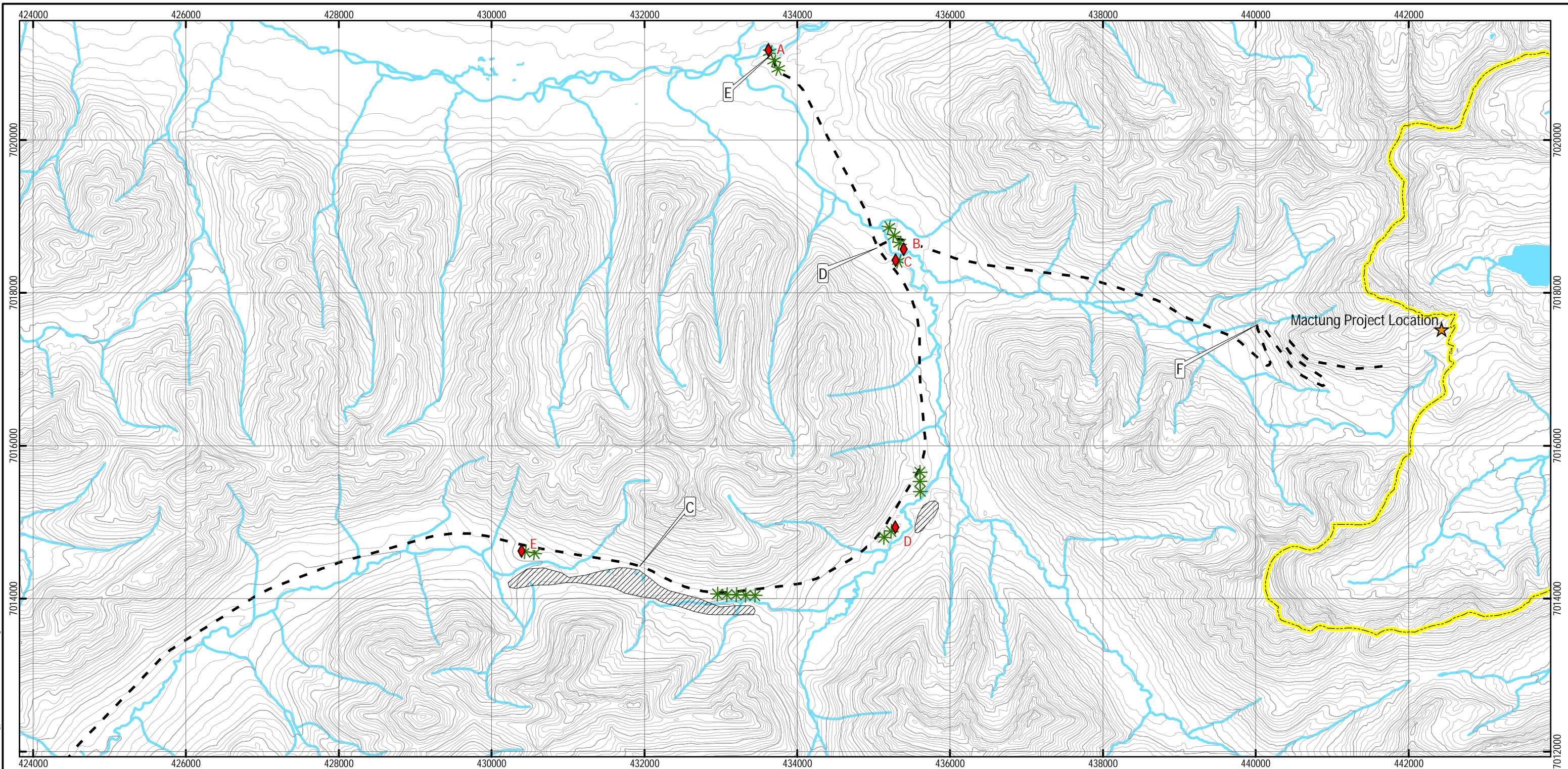
**Areas of Archaeological Assessment**

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Figure 2a

NOTES  
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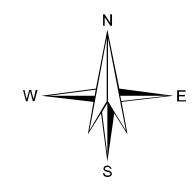
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**LEGEND**

- Mactung Site
- Archaeological Shovel Test (ST) Locations
- Areas of Archaeological Ground Reconnaissance
- Existing Roads
- Proposed Access Road
- Areas of Moderate Potential
- NWT - Yukon Border
- Contours (20m)
- Contours (100m)
- Watercourse
- Waterbody
- Reference Node

ST	NOTES
A	12 ST over 2 terraces, 10 m apart
B	4 ST at 10 m intervals running south
C	4 ST judgementslly placed
D	4 ST one on each knoll
E	4 ST at 10 m intervals, running east

ST = Shovel Test



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**Areas of Archaeological Assessment**

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DWN MEZ	CKD BA
DATE November 13, 2008	REV 0

NOTES  
Base data source: NTDB 1:50,000

Figure 2b



## 4.2. *Results of Archaeological Ground Reconnaissance*

### 4.2.1. Pumping Station

The terrace edges behind the proposed pumping station were characterized by shrub birch-lichen habitat possessing poor surface visibility. These edges were walked and a series of 12 shovel tests were excavated at 10 m intervals transecting the location where the access road will approach the proposed pumping station (Photo 6). In addition, surface clearing was undertaken at 5 m intervals between the shovel tests.

The majority of tests were excavated to 10 cm below ground surface, and the subsurface profiles exhibited a fairly consistent pattern of black silty soil beneath the surface moss and lichens, underlain by light grayish silt or ash (possibly White River ash), underlain by mottled black/grey/yellow-brown silty sand with pebbles, underlain by a yellow-brown silty sand with heavier gravels (Photo 7). The thicknesses of each layer varied from unit to unit.

No surface or subsurface archaeological material was encountered in the vicinity of the proposed pumping station.

### 4.2.2. Access Road

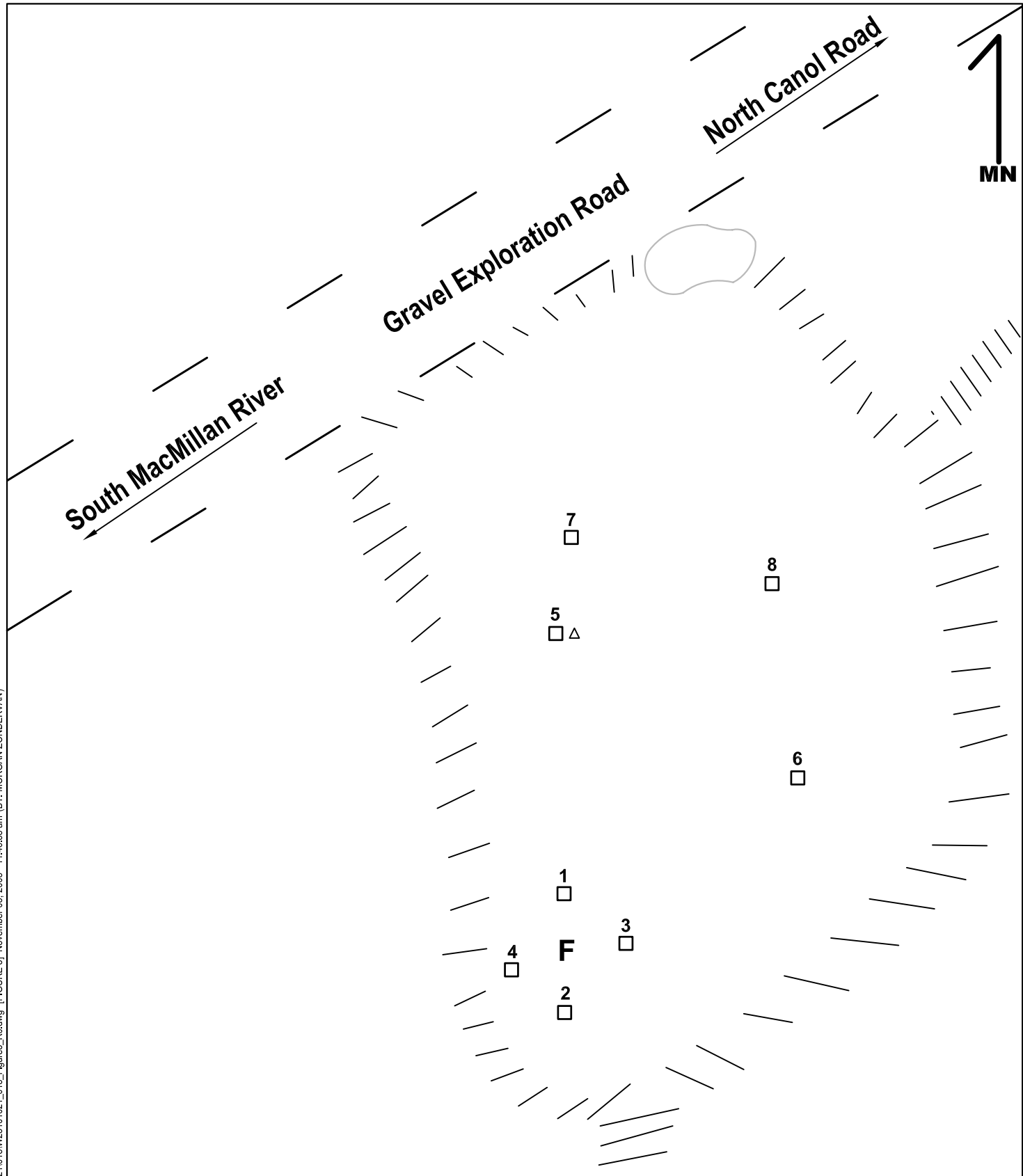
The majority of the proposed road alignments tended to hug side slopes that were considered to be of low archaeological potential. Starting from the North Canol Road in Macmillan Pass, the areas which were investigated on the ground were as follows:

- A raised gravel landform on the south side of the existing access road leaving the North Canol Road at Node A (Figure 2). This landform is approximately 250 m east of the South Macmillan River and runs from the exploration road south and east for about 150 m with three prominent knolls. One site, KgTg-3 was found on the lowest knoll closest to the exploration road (Figure 4, Photo 8). No other sites were encountered.

KgTg-3 is represented by a single large dark grey chert flake, located on the ground surface (Photo 9, 10). The flake measures 84 mm x 73mm x 9.5 mm and exhibits fine bifacial use-retouch along one edge with possible polish from use also evident on the flake ridges. The chert material is not native to the project area (Gebru pers. comm. 2008), but is fairly common at archaeological sites elsewhere in the Yukon, particularly in the Pelly River region (Thomas, pers. comm. 2008). No other archaeological material was observed on the surface. Additionally, no subsurface cultural deposits were encountered in eight shovel test excavated at the site.

The small knoll, upon which the site is situated, appears to have been used as a survey station for aerial photography at one time. A survey monument with the inscription UMA 660 was located about 12 m north (magnetic) of the flake (Figure 4), and a white material similar to that used for aerial photographic station markers was noted beneath some rocks near the monument.

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**LEGEND**

- F Flake
- Test Pit
- △ Survey Monument UMA 660
- Glacial Erratic

SCALE 1:200



CLIENT



**MACTUNG**

**KgTg-3 Site Map**

PROJECT NO. W23101021.018	DWN MEZ	CKD BA	REV 0
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**Figure 3**



Given the lack of additional archaeological material, KgTg-3 is interpreted as a single short term hunting or look-out stopping place, consistent with other sites located in the area. Dating of the site is not possible and other than providing additional confirmation that Macmillan Pass has been utilized as a transportation route and hunting area since before the historic era, it is not considered to be a highly significant site.

- A section of high open ridges approximately 1.8 km west-south-west of the North Canol Road at Node A, where the existing exploration road climbs out of the South Macmillan River valley (Photo 11). It is expected the MacTung access will use the existing road in this area. Ground surface exposures were good on this ridge, and no archaeological material was observed.
- A ridge feature at the confluence of two major streams approximately 15 km northwest from Macmillan Pass (Node B, Figure 2a). A mining exploration camp is located at the toe of this ridge overlooking the confluence of the two streams (Photo 12). Core sheds are still present and the core tags indicate it was operational in early 1980's. An exploration road runs down the spine of the ridge to this camp, and has been kept open by a local trapper, who is still using a cabin at the exploration camp. Considerable surface disturbance has occurred along this ridge, so both surface and subsurface exposures are plentiful and were investigated with negative results.
- A well defined ridge west of Node C (Figure 2b) appears to be either a small medial or terminal moraine about 200 m in length. It has a commanding view of the southwest draining valley, and is composed of well drained shale gravels (Photo 13). This ridge was walked and no archaeological material was noted on the surface. Four shovel tests 10 m apart were placed in the more vegetated areas of this ridge, two at the east end and two at the west end. No subsurface archaeological material was encountered.
- East of Node C, an area of archaeological potential is crossed where the alignment approaches closer to the creek. Here a series of raised gravel knolls and ridges (Photo 14) approximately 600 m in extent were investigated. Surface exposure was good in this area so subsurface testing was not considered necessary. No archaeological material was observed.
- Two areas of moderate potential between the locality described above as east of Node C, and Node D (Figure 2b) were examined. The most southerly of these two areas is a prominent gravel ridge with three knolls on the east side of the road alignment (visible in Photo 4). This ridge is about 260 m in length and has a commanding view of the entire drainage. While there were surface exposures, the ridge was covered with shrub birch, and four shovel tests were excavated, one on each knoll and one on a western extension of the central knoll. No archaeological material was observed either on the surface or in the subsurface tests.

The second area of potential was a high remnant terrace with small ridges and knolls extending off the northern and southern edges. These features extended over an area of approximately 160 m by 190 m, and may be remnant stream terraces or a lateral moraine. Scrub birch was the predominant vegetation, but surface exposures along the terrace edges and on the knolls was good. No archaeological material was encountered.

- Two features near the confluence of two major streams near Node D (Figure 2b, Photo 15). One being a small terrace edge on the west side of the valley, south of Node D. This small remnant terrace covers an area of approximately 40 m<sup>2</sup> and has a commanding view of the valley and the confluence of the two streams. A well worn game trail offers good ground visibility but surface vegetation is heavy off the trail, so four shovel tests were excavated. No archaeological material was encountered, although the subsurface in some areas showed a thick layer (ca. 25 cm) of dark grey silty sand (Photo 16).

The second area of potential is a gravel ridge on the east side of the creek at Node D. This ridge trends WNW – ESE for approximately 400 m in length. It is about 250 m wide at the northern end and tapers to about 2.5 m at the southern end overlooking the confluence of the two streams. The entire ridge was walked, and a series of four shovel tests were excavated at 10 m intervals where the access road from the mine site is proposed to cross the southern portion of this ridge. No archaeological material was observed either on the surface or within the shovel tests.

- The last area investigated on the ground was a broad flat extending approximately 250 m south of the proposed pumping station on the tributary of the Hess River. This area is essentially an extension of that described for the terraces backing the pumping station. Although initially considered to have a low potential for archaeological sites, it was intensively ground checked while awaiting a helicopter pick-up. No archaeological material was observed.

#### **4.2.3. Macmillan Pass Airfield**

The proposed extension of the Macmillan Pass Airfield will basically extend into low boggy terrain with low archaeological potential. However, there is a raised gravel knoll along the south edge of the extension. As this knoll may be used for borrow material for the extended runway it was examined. The ground surface was heavily obscured with lichen although game trails and other minor exposures did provide considerable surface exposure; those exposures were augmented by four shovel tests. No archaeological material was encountered.

#### **4.2.4. Possible Areas of Concern**

While all of the areas along the proposed access road alignment considered to have moderate or higher archaeological potential were investigated, there are at least three additional areas off the proposed line which possess features likely to be of moderate potential. These include a raised landform approximately 1.5 km south of Node B (Figure 2a); much of the divide and south side of the valley below Node C (Figure 2b); and an raised landform on the east side of the valley between Nodes C and D (Figure 2b, Photo 17).

If the road alignment is altered in future and any of those areas are to be impacted, or considered for borrow material, such plans should be reviewed by an archaeologist, as further ground assessment may be required. However, given the low density and visibility of sites in the vicinity of the MacTung project, it is apparent this has been a peripheral area for human activity in the past. It is unlikely any new sites found, other than confirming the area was used occasionally in the past, would significantly increase our understanding of the local prehistory.

**5. CONCLUSIONS AND RECOMMENDATIONS**

The 2008 archaeological investigations of the MacTung Project found that there is little archaeological potential along the majority of the proposed mine access roads, pumping station, or the proposed extension to the Macmillan Pass Airfield.

One small archaeological site, KgTg-3, was located on a knoll in Macmillan Pass adjacent to an existing exploration road, which will likely be utilized as part of the MacTung access. That site is unlikely to yield additional information that would significantly add to our understanding of the prehistory of the area, and no further work is recommended.

Although KgTg-3 is not considered to be of high archaeological significance and is not recommended for further assessment, it should be avoided if possible. The most likely threat to this site in future would be from gravel borrow activities.

Similarly, while no further archaeological investigations are considered necessary for the project as proposed, at least three small localized areas of moderate archaeological potential outside the road alignments were identified. Any future developments that may impact those areas should be reviewed by an archaeologist to assess whether further ground reconnaissance would be necessary.

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**Photo 1**  
**View north from KgTg-1, 1983**  
(courtesy of Ruth Gotthardt, Yukon Heritage Branch, Whitehorse)

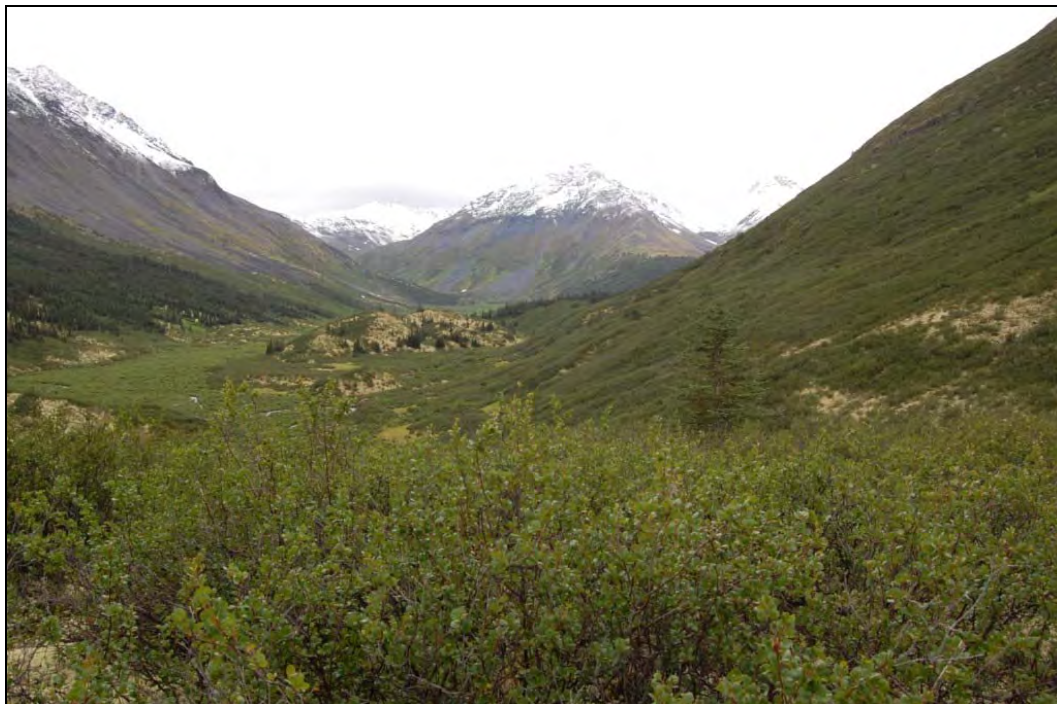


**Photo 2**  
**View north from KgTg-1, 2008**





**Photo 3**  
**View north of the proposed pumping station locality (sand bar upper left)**  
**on a southern tributary of the Hess River**



**Photo 4**  
**View south towards of typical side slope followed by the road alignment**  
**(between map reference Nodes C and D)**





**Photo 5**  
**Northeast end of Airfield, Macmillan Pass, extension into boggy area**  
**(courtesy of Scott Davidson, EBA Engineering, Whitehorse)**



**Photo 6**  
**View to east of testing along the terrace edge behind pumping station**





**Photo 7**  
**Typical subsurface profile of terrace behind pumping station**



**Photo 8**  
**View to west of archaeological site KgTg-3 (where people are standing)**





**Photo 9**  
**Utilized flake in situ at KgTg-3.**



**Photo 10**  
**Utilized flake from KgTg-3**



**Photo 11**  
**View to southeast from high open ridges above Macmillan Pass**

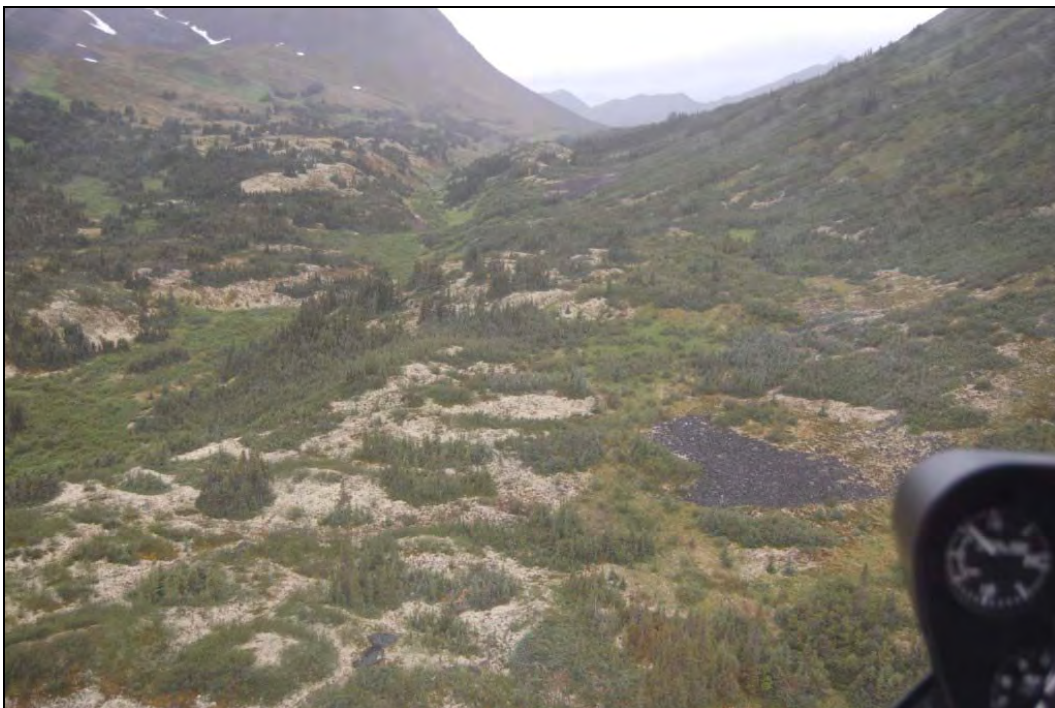


**Photo 12**  
**View to southeast of ridge with mining camp at confluence of creeks map reference Node B**





**Photo 13**  
**View west showing gravel ridge west of map - reference Node C**

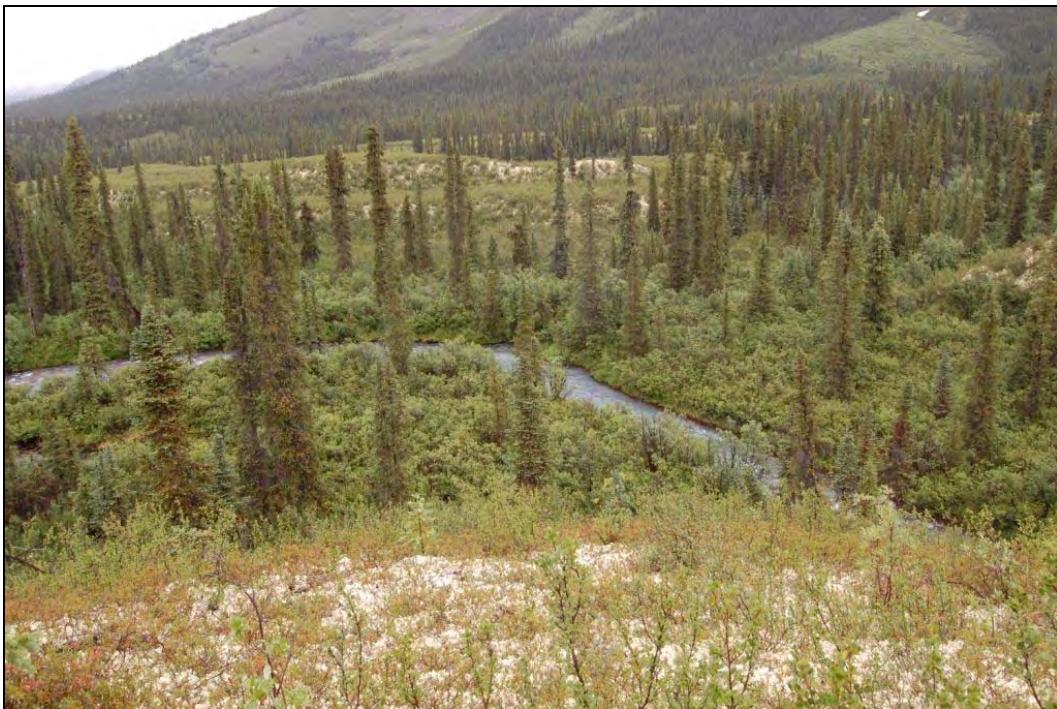


**Photo 14**  
**View west showing gravel knolls and ridges east of map - reference Node C**





**Photo 15**  
**Typical grey shale subsurface on ridge west of map - reference Node C**



**Photo 16**  
**View northeast from small terrace remnant south of map - reference Node D**  
**gravel ridge east of Node D is in background**





**Photo 17**

**Test Pit on small terrace remnant south of Node D showing dark silty sand layer**



**Photo 18**

**Gravel knolls and terraces with moderate potential south of map - reference Node C**