



Coffee Gold Mine
YESAB Project Proposal
Appendix 26-A Heritage Resources Valued
Component Assessment Report

VOLUME IV

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ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
BP	before present
CFP	Chance Find Protocol
GIS	geographic information system
Goldcorp	Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc.
HRIA	Heritage Resources Impact Assessment
HROA	Heritage Resources Overview Assessment
HRPP	Heritage Resources Protection Plan
LAA	Local Assessment Area
NAR	Northern Access Route
PFR	Preliminary Field Reconnaissance
Project	Proposed Coffee Gold Mine
Proponent	Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc.
RAA	Regional Assessment Area
ROW	right-of-way
SDR	Systematic Data Recovery
TK	Traditional Knowledge
UFA	Umbrella Final Agreement
VC	Valued Component
YASD	Yukon Archaeological Sites Database
YESAA	Yukon Environmental and Socio-Economic Assessment Act
YESAB	Yukon Environmental and Socio-economic Assessment Board
YHSI	Yukon Historic Sites Inventory

SYMBOLS AND UNITS OF MEASURE

Symbol / Unit of Measure	Definition
ha	hectare
km	kilometre
m	metre

1.0 INTRODUCTION

The Heritage Resources Valued Component (VC) Assessment Report describes the existing conditions and assessment of potential effects and cumulative effects on heritage resources related to the proposed Coffee Gold Mine (Project). The assessment of Heritage Resources as a VC is based primarily on background and technical data from: two Project-specific Heritage Resources Overview Assessments (HROAs) (**Appendices 26-A1, and 26-A3**), a Preliminary Field Reconnaissance (PFR) (**Appendix 26-A1**), and two Heritage Resources Impact Assessments (HRIAs) (**Appendix 26-A2, and 26-A4**). This assessment also incorporates information gathered during consultation with First Nations and from environmental baseline reports.

The term “heritage resources” is used here to refer to archaeological resources, historical resources, and paleontological resources collectively (i.e., all are considered to be types of heritage resources). The term is specifically defined under the *Yukon Environmental and Socio-Economic Assessment Act*, SC 2003, c. 7 (YESAA), to mean:

(a) a moveable work or assembly of works of people or of nature, other than a record only, that is of scientific or cultural value for its archaeological, palaeontological, ethnological, prehistoric, historic or aesthetic features; (b) a record, regardless of its physical form or characteristics, that is of scientific or cultural value for its archaeological, paleontological, ethnological, prehistoric, historic or aesthetic features; or (c) an area of land that contains a work or assembly of works referred to in paragraph (a) or an area that is of aesthetic or cultural value, including a human burial site outside a recognized cemetery (YESAA 2003).

The term “archaeological site” includes pre-European contact or post-contact sites that reflect past human activity and are known or suspected to be older than 45 years. Historical site is used to include abandoned sites and objects known or suspected to be older than 45 years. The term paleontological site refers to the remains or a fossil of extinct or prehistoric plants and animals (Government of Yukon 2010).

The Heritage Resources VC assessment covers:

- Scope of assessment, including issues scoping, description of the VC selection process and outcome, and the establishment of spatial and temporal assessment boundaries
- Existing conditions relevant to Heritage Resources VC
- Potential Project-VC interactions with specific Project components and activities; potential adverse effects to the VC; mitigation measures to eliminate, reduce, or control these adverse effects; and potential residual adverse effects, including determination of significance and likelihood
- Potential cumulative effects to the VC due to interactions between the residual effects of the Project and the residual effects of other past, present, and future projects and activities; potential adverse cumulative effects on Heritage Resources; mitigation measures to eliminate, reduce, or control these adverse effects; and potential residual adverse cumulative effects, including significance and likelihood

- Monitoring to be undertaken to verify assessment predictions and evaluate mitigation effectiveness
- Adaptive management program(s) to be implemented to address any unexpected Project-related effects on the VC.

1.1 ISSUES SCOPING

This section of the assessment defines and describes the process used to select Heritage Resources as a VC, along with its subcomponents, including the inputs considered and the rationale for their selection. Indicators used to evaluate potential adverse effects and potential residual effects to Heritage Resources are examined and described. Rationales for and the relationships of subcomponents within the VC are also examined. Assessment boundaries are discussed, identifying and justifying spatial, temporal, administrative, and technical boundaries within which the assessment was conducted.

The assessment incorporates information gathered through consultation with regulators, stakeholders, community members, and First Nations to inform the identification of issues and guide the assessment process (See **Section 3.0 Consultation**). This consultation and engagement process has included technical working groups established with First Nations, government departments, community meetings, one-on-one and small group meetings, and ongoing communications such as print communication, newsletter, and website updates, including specific presentations and discussions regarding key themes of interest and exploration of candidate VCs to represent the themes. Key themes of interest identified through the consultation process and reviews of other information included potential effects to archaeological and historical resources.

Baseline studies undertaken before and during the Project's Feasibility Study (July 2014 to July 2016) involved scoping activities to identify and understand issues related to Heritage Resources (**Appendices 26-A1, 26-A2, 26-A3, and 26-A4**). These included background research on the natural and cultural setting of the Local Assessment Area (LAA). See **Section 1.3** for definition) and review of relevant literature including historical and archival documents and physical characteristics of the LAA to evaluate the potential for Heritage Resources to be present therein. Detailed locations and descriptive information regarding documented heritage sites were obtained from the Yukon Archaeological Sites Database (YASD) and the Yukon Historic Sites Inventory (YHSI) maintained by the Cultural Services Branch of the Department of Tourism and Culture. The Traditional Territory of First Nation of Na-Cho Nyäk Dun, Selkirk First Nation, Tr'ondëk Hwëch'in First Nation, and the asserted territory of the White River First Nation overlap with the LAA; these First Nations were contacted to request relevant traditional land use information. Traditional land use information can inform baseline studies for areas of high, moderate, or low potential for Heritage Resources. Tr'ondëk Hwëch'in First Nation provided information for the 2010 Heritage Resources Overview Assessment and Preliminary Field Reconnaissance, the 2011 Heritage Resources Impact Assessment, and the 2016 HROA. Tr'ondëk Hwëch'in First Nation also provided participants for the 2010 PFR and 2011 HRIA archaeological fieldwork. Selkirk First Nation provided information for the 2016

HROA. Members of the First Nation of Na-Cho Nyäk Dun, Selkirk First Nation, Tr'ondëk Hwëch'in First Nation, and White River First Nation participated in the 2016 HRIA.

1.2 SELECTION OF HERITAGE RESOURCES

The rationale for selecting Heritage Resources as a VC follows the process outlined in **Section 5.0 Assessment Methodology** of the Project Proposal. Heritage resources are susceptible to disturbance during surface and subsurface altering activities related to the Project. First Nation of Na-Cho Nyäk Dun, Selkirk First Nation, Tr'ondëk Hwëch'in First Nation, and the White River First Nation whose traditional territories overlap with the LAA recognize the value of heritage resources (Easton et al. 2013, Winton 2012, Bates et al. 2014, Dobrowolsky 2014). Additionally, heritage resources are considered a VC based on the legislated protection of these resources, their presence in the LAA, and their potential to be adversely effected, as well as the importance of these resources to the First Nation of Na-Cho Nyäk Dun, Selkirk First Nation, Tr'ondëk Hwëch'in First Nation, and the asserted territory of the White River First Nation.

1.2.1 CANDIDATE VALUED COMPONENTS

Heritage resources were identified as a Candidate VC for the following reasons:

- Archaeological and historical resources are present in the LAA
- Heritage resources may be adversely effected by Project components
- Heritage resources are considered important by First Nations, regulatory agencies, local communities, and the public.

Heritage resources within the LAA were identified by thorough assessment of previous studies, government heritage databases, and consultation with First Nations (outlined in Section 1.1). The selection of Heritage Resources as a Candidate VC was largely based on Project-specific concerns about Heritage Resources expressed by First Nations, local communities, government agencies, the public, and other stakeholders, as identified during consultation and engagement.

Once selected as a Candidate VC, Heritage Resources were evaluated as to whether they would be receptors of potential environmental or socio-economic effects of the Project. Heritage Resources were selected as a VC for the assessment (**Table 1.2-1**) based on:

- Potential Project-related effects to Heritage Resources can be measured.
- Heritage resources are present in the LAA and may be potentially affected by the Construction and Operation Phases of the Project.
- Heritage resources are important to First Nations, regulatory agencies, stakeholders, and the public.
- Archaeological and historical resources provide a record of traditional land use by First Nations.

- This candidate VC supports the assessment of the Traditional Land and Resource Use subcomponent of the Land and Resource Use VC assessment (**Appendix 24-A**).
- The *Historic Resources Act*, RSY 2002, c. 109, and Archaeological Sites Regulation (OIC 2003/73) protect all three types of heritage resources, applying to archaeological and historical resources that are older than 45 years, as well as paleontological resources.
- The *Tr'ondëk Hwëch'in Heritage Act* (2016) protects heritage resources (as defined in the Act) that are determined to be of direct relatedness to the culture and history of Yukon First Nations.
- Assessment is required under YESAA to protect and maintain heritage resources.

Table 1.2-1 Candidate Valued Components – Evaluation Summary

Candidate VC	Project Interaction			Third Party Input		Supports the Assessment of Which Other VC?	Selected as a VC?	Decision Rationale
	Interaction?	Project Phase / Project Component / Activity	Nature of Interaction	Source	Input			
Heritage Resources	Yes	Overall Project / Construction and Operation Phases	Potential for adverse effects to Heritage Resources through any ground disturbance or clearing activities.	<ul style="list-style-type: none"> • First Nation of Na-Cho Nyäk Dun • Selkirk First Nation • Tr'ondëk Hwëch'in First Nation • White River First Nation • Government of Yukon • City of Dawson • HRIA • HROA 	<ul style="list-style-type: none"> • Traditional knowledge of past land and resource use • Legislation protecting Heritage Resources • Key Issues during consultation program • Baseline Data • Archaeological potential modelling 	Traditional Land and Resource Use Assessment	Yes, Heritage Resources	Heritage resources are considered a VC based on the legislated protection of these resources, their presence in the LAA and potential to be adversely effected, as well as the importance of these resources to First Nations and various stakeholders.

1.2.2 SELECTED VALUED COMPONENT

Heritage resources are non-renewable and susceptible to alteration, damage, or destruction by any development project that has ground disturbance or clearing activities. Heritage resources have importance and value to the scientific, cultural, and public communities, and include archaeological, historical, and paleontological resources. Heritage resources (including, but not limited to archaeological and historical sites that are older than 45 years) are automatically protected from destruction or alteration under Yukon legislation.

Additionally, archaeological, and historical resources are important to First Nations because they demonstrate the long-term use of their traditional territories and provide a physical link to their cultural history.

1.2.3 SUBCOMPONENTS

Heritage resources are made up of archaeological, historical, and paleontological resources collectively. For the purposes of this assessment, in some instances the Heritage Resources VC is discussed generally as a whole, encompassing all of these resources. For technical assessment of Project-related effects and appropriate mitigation measures, however, Heritage Resources is divided into two subcomponents, consisting of archaeological and historical resources as one subcomponent, and paleontological resources as another subcomponent. Archaeological and historical resources are the remains of past human activity, whereas paleontological resources are the preserved or fossilized remains of prehistoric plants or animals (Table 1.2-2).

Table 1.2-2 Subcomponents for Heritage Resources

Subcomponent	Represents	Selection Rationale
Archaeological and Historical Resources	Remains of past human activity, including precontact and post-contact sites older or suspected to be older than 45 years.	Non-renewable resource susceptible to alteration or disturbance, and has importance and value to the scientific, cultural, public, and First Nations communities. Protected by Yukon and First Nation legislation.
Paleontological Resources	Remains of a fossil or other object that indicates the existence of extinct or prehistoric plants or animals.	Non-renewable resource susceptible to alteration or disturbance, and has importance and value to the scientific, cultural, public and local communities. Protected by Yukon First Nation legislation.

1.2.4 INDICATORS

Potential effects to Heritage Resources resulting from Project activities are identified by predicted changes to indicators, which are quantitative or qualitative measures used to describe the level or amount of change to a VC. For the Heritage Resources VC, the selected indicators are the number and integrity of any archaeological, historical, or paleontological resources within the LAA. The rationale for selecting these indicators is provided in Table 1.2-3.

Table 1.2-3 Indicators for Heritage Resources

Indicator	Selection Rationale
Archaeological and Historical Resources	
Number	Recorded archaeological or historical sites are measurable areas proven to contain archaeological and/or historical objects and features, and are culturally important to First Nations. Any loss to the number of sites is a measurable adverse effect or change to the VC subcomponent.
Integrity	Recorded archaeological or historical sites are measurable areas proven to contain archaeological and/or historical objects and features and are culturally important to First Nations. A loss of the integrity of a site (reduced size, disturbed context, redistribution of material) is a measurable adverse effect or change to the VC subcomponent.
Paleontological Resources	
Number	Recorded paleontological sites are measurable areas proven to contain paleontological objects and/or features. Any loss to the number of sites is a measurable adverse effect or change to the VC subcomponent.
Integrity	Recorded paleontological sites are measurable areas proven to contain paleontological objects and/or features A loss of the integrity of a site (reduced size, disturbed context, redistribution of material) is a measurable adverse effect or change to the VC subcomponent.

1.3 ESTABLISHMENT OF ASSESSMENT BOUNDARIES

This section identifies the spatial, temporal, administrative, and technical boundaries established for the assessment of effects on Heritage Resources.

1.3.1 SPATIAL BOUNDARIES

Potential Project-related effects on Heritage Resources are limited to the area of proposed Construction and Operation Phase related ground disturbance and clearing activities, plus a 50-metre (m) buffer. For this assessment, the LAA is therefore the same as the Project footprint.

The Regional Assessment Area (RAA) provides regional context and is considered to be the LAA plus a 200-m buffer. (Table 1.3-1).

Table 1.3-1 Spatial Boundary Definitions for Heritage Resources

Spatial Boundary	Description of Assessment Area
Heritage Resources	
Local Assessment Area	The Project footprint: The area in which Project-related ground disturbance and clearing activities will occur, plus a 50-m buffer, including the mine, associated infrastructure, permanent and/or temporary access roads, and the airstrip as shown in Figure 1.3-1 .
Regional Assessment Area	The RAA is defined as the area encompassing the Project Footprint or LAA, as well as a 200 m buffer as shown in Figure 1.3-2 .

1.3.2 TEMPORAL BOUNDARIES

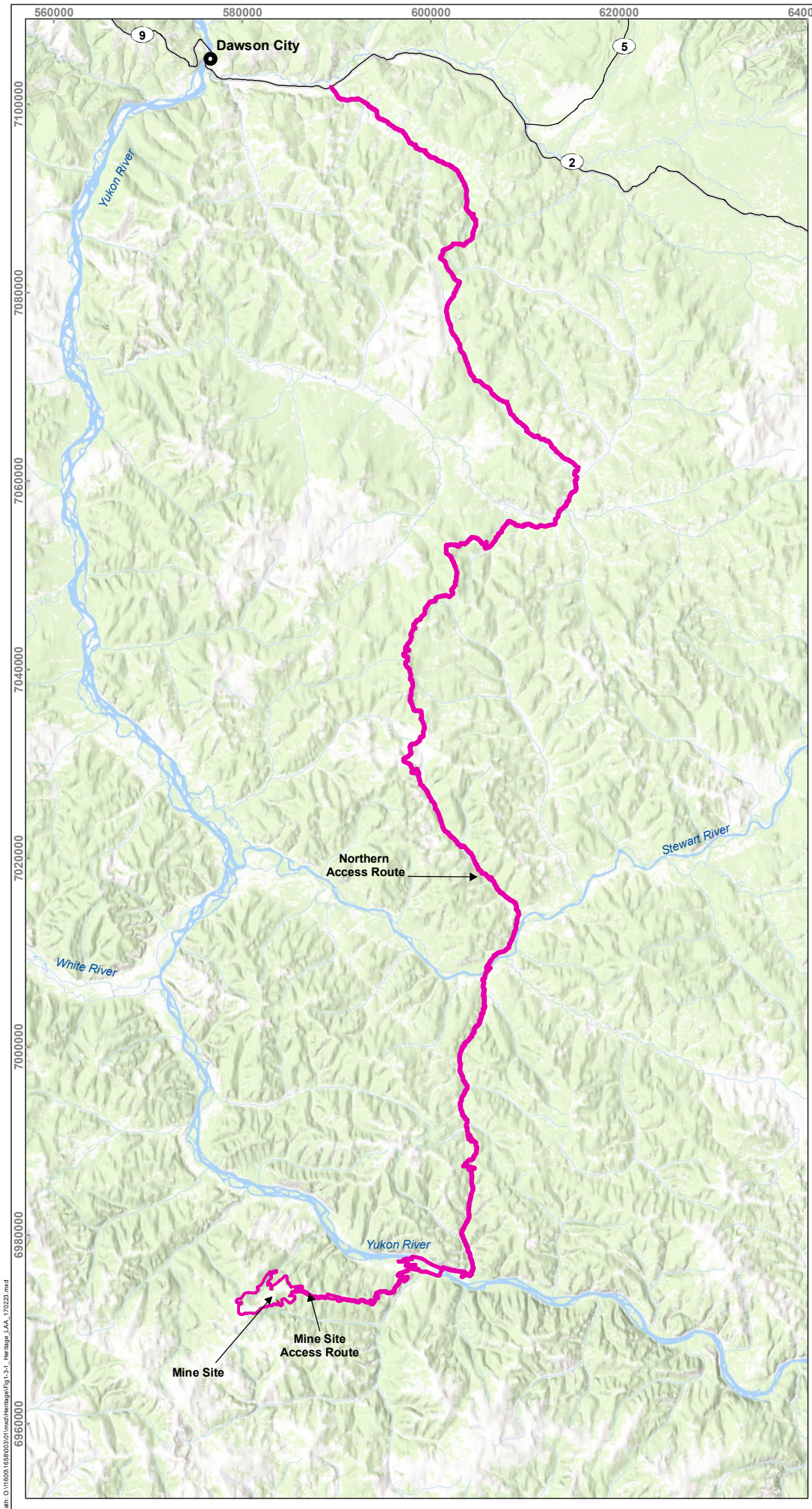
Temporal characteristics of the Project's Construction, Operation, Reclamation and Closure, and Post-closure Phases are described in **Section 2.0 Project Description** of the Project Proposal. The temporal boundaries established for the assessment of potential Project-related effects on Heritage Resources encompass the Construction and Operation Phases. The Reclamation and Closure and Post-closure Phases will be limited to areas of previous disturbance; therefore, effects to heritage resources will have already been mitigated and will not require consideration during these latter phases.

1.3.3 ADMINISTRATIVE BOUNDARIES

No administrative boundaries were identified that interfere with the ability to identify or assess potential effects on Heritage Resources.

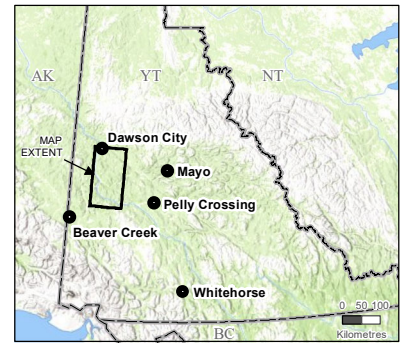
1.3.4 TECHNICAL BOUNDARIES

Aside from the general limitations of archaeological field methods, no technical boundaries were identified that interfere with the ability to identify or assess potential effects on Heritage Resources. The limited extent of field survey coverage and previous studies on heritage resources in the areas is discussed in **Section 3.0**.



COFFEE GOLD MINE

**Heritage Resources
VC Assessment
Local Assessment Area**

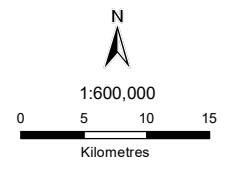


Legend

- Highway
- ▭ Project Footprint
- ▭ Local Assessment Area

Notes

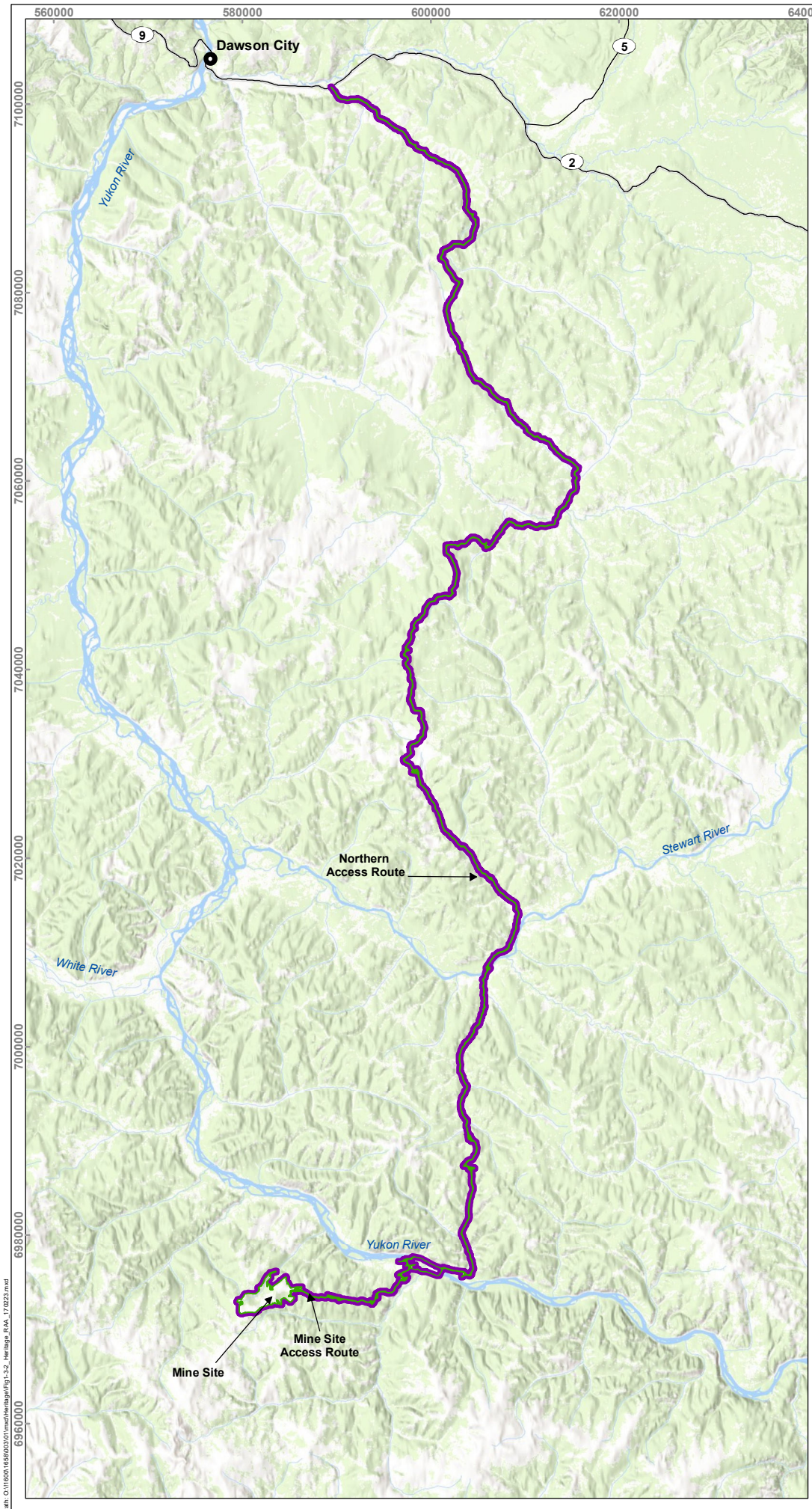
1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
2. Map Sources: ESRI Topo Base, Geomatics Yukon



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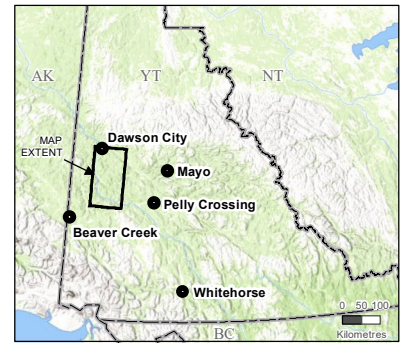
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COFFEE GOLD MINE

**Heritage Resources
VC Assessment
Regional Assessment Area**

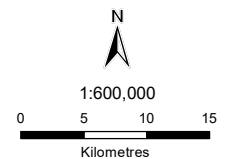


Legend

- Highway
- ▭ Project Footprint
- ▭ Regional Assessment Area

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
2. Map Sources: ESRI Topo Base, Geomatics Yukon



NAD 1983 UTM Zone 7N
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2.0 ASSESSMENT METHODS

This Heritage Resources VC assessment, including the assessment of Project-related effects and cumulative effects, was conducted according to the methods set out in **Section 5.0 Assessment Methodology** of the Project Proposal.

The assessment has been informed through examination of available background literature, previous archaeological and historical studies in the area, through access to the YASD and YHSI managed by the Cultural Services Branch, and environmental baseline reports for paleontological resource potential. First Nations Traditional Knowledge (TK) related to the area of the Project was used to support the identification of areas of archaeological potential and inform the Heritage Resources assessment. The assessment considered the potential for the Project to overlap with and or disturb known and potentially unidentified archaeological and paleontological resources.

3.0 EXISTING CONDITIONS

This section describes the existing conditions of archaeological, historical, and paleontological resources, including the regulatory context for Heritage Resources, TK, scientific and other information, and heritage baseline studies conducted during the Project's Feasibility Program. Previously available information on heritage resources in the LAA is characterized by a lack of detailed ethnographic data, a scarcity of previous heritage studies, as well as the lack of detailed information on environmental and geomorphological processes throughout glacial and post-glacial periods.

3.1 REGULATORY CONTEXT

The Project is situated in the western portion of central Yukon. All or portions of the Project are located within the traditional territories of the First Nation of Na-Cho Nyäk Dun, Selkirk First Nation, Tr'ondëk Hwëch'in First Nation, and within the asserted territory of White River First Nation.

Several acts, agreements, and regulations influence Heritage Resources within the Project footprint. These include the *Historic Resources Act* and annexed Archaeological Sites Regulation, the *Tr'ondëk Hwëch'in Heritage Act*, the *Territorial Lands (Yukon) Act*, SY 2003, c.17, Land Use Regulation (OIC 2003/55), the *Umbrella Final Agreement*, the Quartz Mining Land Use Regulation (OIC 2003/64), the Placer Mining Land Use Regulation (OIC 2003/59), and YESAA.

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

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

Chapter 13 of the Umbrella Final Agreement (UFA) provides regulations for the ownership and management of heritage resources found within First Nation Settlement Lands and Traditional Territories. Section 3.1 states that each Yukon First Nation shall own and manage heritage resources found on its Settlement Land. Under Section 3.2, ethnographic moveable heritage resources recovered from its Traditional Territory that are not public records or private property, are owned and managed by the First Nation.

Consistent with Chapter 13 of the Tr'ondëk Hwëch'in Final Agreement (1998), the *Tr'ondëk Hwëch'in Heritage Act* (TH 2016) was proclaimed by the Tr'ondëk Hwëch'in First Nation in September 2016 (CBC 2016), and applies to heritage resources within the traditional territories of the Tr'ondëk Hwëch'in. The Act aims to ensure that heritage resources are managed in a manner consistent with Yukon First Nations values and the Tr'ondëk Hwëch'in Final Agreement. The Act contains provisions for determining whether or not a heritage resource is directly related to the culture and history of Yukon First Nations as well as regulations pertaining to the discovery of heritage resources.

Schedule 1 of the Quartz Mining Land Use Regulation applies to all quartz mineral claims or locations in Yukon, and provides regulations related to the discovery of and operations around heritage sites. Section E (8) states that “Exploration activities must not be carried out within 30 m of a known archaeological or paleontological site unless the Chief [of Mining Land Use] indicates, in writing, that such activities may be carried out.” Additionally, Section E(9) states that “Any sites containing archaeological objects, paleontological objects or human remains or burial sites discovered in the course of carrying out an exploration program must be immediately marked and protected from further disturbance and, as soon as practicable, the discovery reported to the Chief [of Mining Land Use].” No other operations are to be conducted within 30 m of the site until permission is granted.

Schedule 1 of the Placer Mining Land Use Regulation prohibits disturbances to discovered and undiscovered archaeological sites. Section D (6) states that “All archaeological sites and burial grounds must be avoided. If such a site is encountered in the course of an operation, it is to be marked, reported to the Chief [of Mining Land Use] and protected from further disturbance until authorization is given by the Chief [of Mining Land Use].” These regulations apply to lands on which a placer mining lease has been granted.

3.2 BACKGROUND INFORMATION AND STUDIES

Existing conditions information for the Heritage Resources VC has been drawn from reviews of TK, other scientific studies, and Project-specific studies.

3.2.1 TRADITIONAL KNOWLEDGE

Awareness of TK has influenced the assessment of potential effects to heritage resources. The LAA is located within the traditional territories of the Tr'ondëk Hwëch'in First Nation, who are Hän, and the Selkirk First Nation and First Nation of Na-Cho Nyäk Dun who are both Northern Tutchone. The LAA is also within the asserted territory of White River First Nation, including both Northern Tutchone and Upper Tanana people. Sources on the ethnography and ethnohistory of these groups were reviewed as part of the HROA and HRIA assessment baseline studies conducted during the Project's feasibility program and subsequent studies (provided in **Appendices 26-A1, 26-A2, 26-A3, and 26-A4**). This information was considered with particular focus on aspects of traditional land use that have the greatest influence on the archaeological record (i.e., material culture and seasonal rounds) to support characterization of existing conditions,

including evaluation of heritage resource potential in the LAA. Historic events that altered traditional land use activities were also considered. Further examination of the ethnography and ethnohistory of the relevant First Nations groups is provided in the appended HROAs and HRIAs (**Appendices 26-A1, 26-A2, 26-A3, and 26-A4**).

3.2.2 SCIENTIFIC AND OTHER INFORMATION

Records and documents of the archaeology, prehistory, history, ethnology, paleoenvironment, and environment of the region (published and unpublished), including a Project-specific TK Database, were reviewed to provide a cultural context for possible archaeological and historical sites in the study area. Detailed site locations and descriptive information were obtained from the YASD and YHSI maintained by the Cultural Services Branch of the Department of Tourism and Culture. Information regarding First Nation traditional use of the area was sought through consultation with researchers working concurrently on the TK assessment for the Project. Paleontological resource potential was examined using the Project-specific geology, permafrost, and terrain baseline report (**Appendix 11-A Surficial Geology, Permafrost, and Terrain Stability**).

A number of studies have also been conducted within or adjacent to the LAA that resulted in the discovery of Heritage Resources (**Table 3.2-1**).

Table 3.2-1 Previous Heritage Resource Projects near the Local Assessment Area

Permit	Year	Researcher	Project Title / Description
90-11ASR	1990	Ruth Gotthardt	Archaeological Impact Assessment of Thistle/Ballararat Road
91-13ASR	1991	Michael Forsman	Archaeological Impact Assessment of Brewer/Barker Road
05-20ASR	2005	Christian Thomas	Archaeological survey of Yukon River from Dawson upstream to Coffee Creek
09-13ASR	2010	Ty Heffner	Preliminary Field Reconnaissance of White Gold Project for Underworld Resources
10-22ASR	2010	Ty Heffner	Heritage Resource Overview Assessment and Preliminary Field Reconnaissance of White Gold Project for Kinross
Non-permit	2011	Todd Kristensen	Heritage Resource Overview Assessment of White Gold Claims for Taku Gold
11-17ASR	2011	Ty Heffner	Heritage Inventory of Lower Stewart River
13-08ASR	2013	Ty Heffner	Heritage Resources Inventory of the Klondike Plateau and Yukon Plateau North

3.2.3 BASELINE STUDIES CONDUCTED DURING THE PROJECT'S FEASIBILITY PROGRAM

Both desktop and field baseline archaeological and historical resource studies were undertaken during the Project's Feasibility Program. Four archaeological and historical heritage studies were conducted on the Project. All four heritage studies were conducted in response to the requirement of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process and/or as a requirement to obtain a Mining Land Use Permit (**Table 3.2-2**).

The first heritage study was an HROA that was followed by a PFR on the extent of the Coffee Gold Mine Site in 2010 (**Appendix 26-A1**). The objectives of the first heritage study were as follows:

- Classify the study area land base into zones of archaeological and historical resource potential through the HROA.
- Refine the HROA through an aerial overview and ground surveys during the PFR.
- Document above- and below-ground Heritage Resources identified during the PFR of the Mine Site.

Heritage Resource potential was derived from previous assessment experience in similar areas and traditional topographic indicators (i.e., level terrain, proximity to hydrological features, etc.). The PFR was conducted under Permit 10-23ASR from August 31 to September 4, 2010. The HROA was not conducted under permit but was completed prior to the PFR survey in 2010. The 2010 HROA and PFR study area covered approximately 44,423 hectares (ha) on the south side of the Yukon River, approximately 130 kilometres (km) south of the City of Dawson (Dawson), between Britannia Creek to the east and Carlisle Creek to the west (**Appendix 26-A1**).

The second heritage study was an HRIA in 2011 (**Appendix 26-A2**), which followed up on the recommendations of the 2010 HROA and PFR of the Project mine area. The objectives of the 2011 HRIA were to:

- Document above- and below-ground Heritage Resources identified during the 2010 HROA of the Coffee Gold Mine Site.
- Assess degrees of potential effect on identified Heritage Resources.
- Offer management recommendations for identified Heritage Resources.

Fieldwork was conducted under Permit 11-03ASR from June 13 to 23, 2011. The 2011 HRIA study area was focused on selected portions of the Mine Site where developments were proposed that overlapped with areas of moderate and high heritage resources potential as defined by the 2010 HROA. Fieldwork during the 2011 HRIA included a visual inspection on foot for above-ground Heritage Resources and subsurface shovel testing to identify below-ground heritage resources.

The third heritage study was an HROA in 2016 of the proposed access road corridor to the Coffee Property including two alternate route sections south along the corridor (**Figure 3 in Appendix 26-A3**). The 2016 HROA involved a desktop review of the proposed access road, an area not included in earlier heritage assessment studies. The objective of the 2016 HROA was to determine heritage potential within the proposed access road corridor. The 2016 HROA study area begins approximately 58 km south-southeast of Dawson, Yukon (at Dominion), and ends approximately 130 km further south at the Mine Site. The proposed road corridor connects to existing roads (Hunker, Sulphur, and Upper Bonanza roads) and includes proposed new road segments. The route runs south of Dawson through the Klondike Gold Fields, over the Stewart River to the Yukon River, and ends at the Coffee Property. The 2016 HROA recommended an HRIA prior to any land-altering activities being conducted within 30 m of areas having elevated Heritage Resource potential.

The fourth heritage study of the Project was an HRIA in 2016 that followed up on the recommendations of the 2016 HROA for the proposed access road corridor to the Coffee Property. The 2016 HRIA assessed both the construction of new road segments and improvements to existing road segments to facilitate access to the proposed Mine Site. Fieldwork was conducted between July 18 to 25, 2016 under Permit 16-13ASR. A preliminary interim permit report for the HRIA is attached as **Appendix 26-A4** pending completion of a final permit report and subsequent review by the Yukon Heritage Resources Unit. The survey, conducted on foot, by truck, by all-terrain vehicle, and by helicopter as conditions and access logistics required, focused on the assessment of predicted areas of heritage resource potential identified in the HROA that overlap with the ground disturbance footprint of the proposed access road development; however, almost the entire proposed right-of-way (ROW) was observed and assessed.

Table 3.2-2 Summary of Desktop and Field Studies Related to Heritage Resources

Study Name	Study Purpose, Duration and Spatial Boundaries
HROA and PFR of the Project Conducted Under Permit 10-23ASR	<ul style="list-style-type: none"> • Mine Site located south of the Yukon River, approximately 130 km south of Dawson, between Britannia Creek to the east and Carlisle Creek to the west • HROA followed by a PFR 2010 • Objectives: <ol style="list-style-type: none"> 1) Classification of the Mine Site land base into zones of heritage potential through HROA 2) Refinement of the HROA through an aerial overview and ground-truthing during the PFR 3) Documentation of above- and below-ground heritage resources identified during the PFR of the Mine Site.
HRIA of Project Conducted Under Permit 11-03ASR	<ul style="list-style-type: none"> • Mine Site located south of the Yukon River, approximately 130 km south of Dawson, between Britannia Creek to the east and Carlisle Creek to the west. Included Project mine footprint. • HRIA 2011 • Objectives: <ol style="list-style-type: none"> 1) Document above- and below-ground heritage resources identified during the HRIA of the Mine Site 2) Assess degrees of potential effect on Heritage Resources 3) Offer management recommendations.

Study Name	Study Purpose, Duration and Spatial Boundaries
HROA of Proposed Access Road Corridor to the Coffee Property	<ul style="list-style-type: none"> • Route runs south of Dawson through the Klondike Gold Fields, over the Stewart River to the south side of the Yukon River and ending at the Coffee Property; starting 58 km south-southeast of Dawson and ending approximately 130 km south. • HROA 2016 • Objectives: <ol style="list-style-type: none"> 1) Determine heritage potential within the proposed Northern Access Route corridor for the Project, including two alternate route sections 2) Identify previously recorded prehistoric heritage sites (n=15) within 5 km of proposed access road corridor 3) Identify previously recorded historic sites (n=59) within 1 km of proposed access road corridor.
HRIA of Proposed Access Road Corridor to the Coffee Property Conducted Under Permit 16-13ASR	<ul style="list-style-type: none"> • Route runs south of Dawson through the Klondike Gold Fields, over the Stewart River to the south side of the Yukon River and ending at the Coffee Property; starting 58 km south-southeast of Dawson and ending approximately 130 km south • HRIA 2016 • Objectives: <ol style="list-style-type: none"> 1) Assess predicted areas of heritage resource potential identified in the HROA that overlap with the ground disturbance footprint of the proposed access road development 2) Inspect entire ROW 3) Attempt to confirm locations of 20 YHSI registered historic sites.

Criteria used to determine potential for Heritage Resources included: proximity to streams and water bodies, known heritage sites, known First Nations or historic trails, topography, vegetation cover, and presence of fish and wildlife habitat as outlined in the Wildlife Key Area maps produced by the Yukon Government Department of Environment. A geographic information system (GIS)-based archaeological potential model (Heffner et al. 2014) was also consulted during the process. Along the Northern Access Route (NAR), field survey efforts found that the majority of the areas of archaeological potential identified in the 2016 HROA (**Appendix 26-A3**) did not possess the predicted elevated potential for a number of reasons. The most common potential limiting factors encountered were high levels of previous disturbance (typically related to past and ongoing mining operations in segments where existing roads are being improved) and large portions of new build segments of the proposed ROW that cross substantial side slope (greater than 45 degrees) (**Appendix 26-A4**). The current understanding of past settlement patterns and land use of the study area is limited by the lack of detailed ethnographic data, the scarcity of precontact heritage studies and recorded sites in the area, and the lack of detailed information on environmental and geomorphological changes throughout the glacial and post-glacial periods. When viewing the heritage resource potential results, it is important to note that low potential does not mean no potential. It is possible for heritage sites to be located outside of areas identified as having elevated heritage resources potential.

Field methods to identify heritage resources included aerial survey, pedestrian survey, and subsurface shovel testing. The aerial survey focused on areas exhibiting moderate to high archaeological potential based on topographic and hydrological characteristics. Pedestrian survey was judgemental in design, and the traverses targeted the areas identified during the aerial survey or targeted notable topographic features (e.g., saddles, knolls, and ridgetops) and surface exposures. Subsurface testing was used to determine the presence of Heritage Resources when none were visible on the surface. Subsurface testing was deemed

unnecessary in low potential areas and in areas of moderate or high potential where surface or subsurface exposures were considered adequate and intensive examinations failed to produce any indication of past human activity. Further details outlining the methods for the Heritage Resource assessments are included in the Project-specific HROA and HRIA reports (**Appendices 26-A1, 26-A2, 26-A3, and 26-A4**).

Paleontological studies have not been conducted for the Project, and paleontological resources were not considered for potential during the HROAs and not assessed as part of the HRIA. For the purpose of this assessment, paleontological resource potential was examined through association with areas of permafrost, and identified through an environmental baseline report that examined surficial geology, physiography, permafrost, and terrain stability (**Appendix 11-A Surficial Geology, Permafrost, and Terrain Stability**). The Project area was not glaciated during the last Wisconsinan glaciation period; therefore, the potential for encountering paleontological resources is considered higher in, although not limited to, areas of permafrost.

3.3 DESCRIPTION OF EXISTING CONDITIONS

3.3.1 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

The RAA and LAA are within the Klondike Plateau, belonging to the eastern margin of Beringia, a large land mass that joined Alaska and Yukon to Siberia in the Late Pleistocene.

The RAA and LAA possess potential for precontact heritage sites in excess of 10,000 years of age, when the northern portion of the continent was first colonized by people. Some of the earliest known archaeological sites in Yukon are found in the Klondike region; these sites document a long history of human occupation and use of the area. These include a site (KIVi-1) along Hunker Creek where C.R. Harington recovered an antler punch that is tentatively dated at 11,350+/-110 before present (BP) (Harington and Morlan 1992; Dobrowolsky and Hammer 2001: 3). More recently, a site dating to nearly 14,000 years BP has been discovered in the Yukon River valley just upstream from the LAA (Thomas et al. 2016). This site (KfVi-3) is situated on an old river terrace near Britannia Creek. The Moosehide site (LaVk-2), located near the present day Tr'ondëk Hwëch'in village of Moosehide, was occupied during at least three episodes that span a period of 8,000 years (Hunston 1978). Many more sites identified in the region have not been adequately examined to determine their age. More detail on the natural and cultural histories of the area is provided in the appended HROAs and HRIAs (**Appendices 26-A1, 26-A2, 26-A3, and 26-A4**).

Areas considered to have high to moderate precontact heritage resources potential are typically near hydrological resources on distinct, well-drained topographic features or are in upland areas on prominent landforms that provide good vantage points or strategic hunting positions. Moderate and high potential areas are generally more prevalent in upland areas or along the lower portions of stream valleys because the upland areas provide easier travel and access to hunting locations whereas upper valleys are steeply sloped.

From the archaeological record it is inferred that larger, more permanent, precontact sites will be positioned adjacent to major hydrological features (e.g., Yukon River). Post-contact heritage resources potential is highest along gold-bearing creek beds. Many of the major drainage valleys in the LAA (e.g., Coffee and Halfway creeks) have not been subjected to extensive dredging operations; therefore, there is a high likelihood that if early mining or prospecting sites were in the area, they are still preserved.

To date, 29 heritage resource sites have been identified and recorded within the LAA (**Table 3.3-1**). Five of the known sites are located within the Mine Site, and were identified and recorded during the PFR (**Appendix 26-A1**) and HRIA (**Appendix 26-A2**). Heritage resources recorded during these first two studies include three prehistoric lithic sites, one historical artifact site, and one World War II-era plane wreck. During the 2016 HROA (**Appendix 26-A3**) and HRIA (**Appendix 26-A4**), it was discovered that a further 24 previously recorded archaeological and historical sites, including 6 prehistoric lithic and 18 historical sites, were located along the NAR portion of the LAA.

Table 3.3-1 Known Heritage Resources within the Local Assessment Area

Site Borden Designation	Project Location	Site Classification*	Site Type
KfVj-1	Mine Site	Historic	Historic artifacts
KfVk-1	Mine Site	Prehistoric	Lithic artifacts
KfVk-2	Mine Site	Prehistoric	Lithic artifacts
KfVk-3	Mine Site	Prehistoric	Lithic artifacts
KfVk-4	Mine Site	Historic	World War II plane wreck
KfVi-16	Northern Access Route	Prehistoric	Lithic artifacts and faunal remains
KgVi-1	Northern Access Route	Prehistoric	Lithic artifact
KgVj-2	Northern Access Route	Prehistoric	Lithic artifacts
KjVi-1	Northern Access Route	Prehistoric	Lithic artifacts and faunal remains
KjVi-2	Northern Access Route	Prehistoric	Lithic artifacts
KiVi-6	Northern Access Route	Prehistoric	Lithic artifacts
115O/02/004	Northern Access Route	Historic	Building
115O/10/047	Northern Access Route	Historic	Dredge
115O/10/052	Northern Access Route	Historic	Cabin
115O/10/053	Northern Access Route	Historic	Cabin
115O/10/097	Northern Access Route	Historic	Foundations
115O/10/098	Northern Access Route	Historic	Collapsed building
115O/10/099	Northern Access Route	Historic	Latrines
115O/10/105	Northern Access Route	Historic	Cabin
115O/10/106	Northern Access Route	Historic	Cabin
115O/10/108	Northern Access Route	Historic	Dredge
115O/10/109	Northern Access Route	Historic	Outhouse
115O/10/110	Northern Access Route	Historic	Foundation
115O/10/113	Northern Access Route	Historic	Shed

Note: *The term Historic is used here to be consistent with the Yukon Historic Sites Inventory Site Classification terminology.

An additional 13 heritage resources have been identified and previously recorded in the RAA. The majority of these resources (10) consist of industrial structural remains associated with historical placer mining activities, and the remainder are prehistoric lithic sites.

In addition to the 29 known heritage resources, portions of the LAA have moderate to high potential for previously unrecorded heritage sites. These areas were inspected for the presence or absence of sites through detailed field investigation in the 2011 and 2016 HRIAs described in **Section 3.2.3** and attached as **Appendix 26-A2** and **Appendix 26-A4**.

The types of heritage resource sites likely to be found in the LAA consist of small, short-term camps related to hunting, trapping, or travel activities. Sites resulting from these activities are normally expressed as small lithic scatters; however, local environmental and geological conditions such as aridity and calcareous sediments may support the preservation of some organic materials. The remains of precontact structures are not expected to be readily visible in the LAA given short-term settlement occupation patterns and previous forest fires, but there may be evidence of cultural depressions.

In addition to previously recorded heritage resources, a number of TK references were reviewed to identify traditional land and resource use within the LAA (Friesen 1978, Yukon Archives 2003, Project-specific TK Database). Various stages of settlement and use of the Coffee Creek area (Easton et al. 2013, Winton 2012, Bates et al. 2014, Dobrowolsky 2014) by First Nations groups, indicates areas of archaeological and historical potential for associated heritage resources. Further detailed examination of those references and their effect on heritage potential is outlined in the appended HROA and HRIA reports (**Appendices 26-A1, 26-A2, 26-A3, and 26-A4**).

3.3.2 PALEONTOLOGICAL RESOURCES

The major creek and river valleys and areas of permafrost within the LAA possess potential for the preservation of paleontological resources. The creeks and rivers erode through ancient sediments, exposing frozen stratigraphic depositions containing bone and/or plant materials. Outcrops of bedrock throughout the LAA may contain fossils of invertebrate and vertebrate animals, and/or plant impressions (Government of Yukon 2010). As stated, the LAA was not subject to glaciation during the last glacial period, but subject to frost action and permafrost-related processes. While specific Project-related paleontological studies have not been conducted for the Project, approximately 62% of the Mine Site area is underlain by permafrost (**Appendix 11-A Surficial Geology, Permafrost, and Terrain Stability**) and these areas have a higher potential for preservation of Pleistocene-age paleontological resources.

4.0 ASSESSMENT OF PROJECT-RELATED EFFECTS

The assessment of Project-related effects identifies potential effects resulting from adverse interactions with Heritage Resources. This section outlines and describes these interactions and their potential effects on Heritage Resources, as well as appropriate mitigation measures to facilitate protection of those resources. This section also describes any likely residual effects to heritage resources and determines the significance of any residual effects to each Heritage Resources subcomponent.

4.1 POTENTIAL PROJECT-RELATED INTERACTIONS WITH HERITAGE RESOURCES

The potential for interactions between Heritage Resources and identified Project activities are evaluated to determine the potential for the interaction to result in an adverse effect. Each potential interaction is rated using the terms provided in **Section 5.0 Assessment Methodology** of the Project Proposal and summarized below (**Table 4.1-1**). Project-related interactions resulting in effects to heritage resources are identified in the Construction and Operation Phases for activities involving vegetation clearing or ground disturbance (**Table 4.1-2**).

Table 4.1-1 Potential for an Interaction between the Land and Resource Use Subcomponents and the Project

Term	Definition
No Interaction	Project activity will not interact with the VC.
Negligible Interaction	Interaction with the Project activity will not have a substantive influence on the short or long-term integrity of the VC (i.e., not measurable / not detectable using the identified indicator). This interaction is not considered further in this effects assessment.
Potential Interaction	Interaction between the Project activity and the VC may have a substantive influence on the short- or long-term integrity of the VC (i.e., measurable or detectable using the identified indicator). The potential effect(s) of the interaction is considered further in the effects assessment.

Table 4.1-2 Identification of Potential Project Interactions Heritage Resources Subcomponents

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Overall Construction Phase						
Overall Mine Site	C-1	Confirmatory geotechnical drilling in select areas at the Mine Site, as necessary	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of archaeological and/or historical resources would include any unmitigated alteration of these resources through ground-disturbing and/or clearing activities.	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of paleontological resources would include any unmitigated alteration of these resources through ground disturbing and/or clearing activities.
	C-2	Mobilization of mobile equipment and construction materials	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-3	Clearing, grubbing, and grading of areas to be developed within the Mine Site	Potential Interaction	Areas in which this activity will occur overlap spatially with three archaeological sites (KfVk-1, KfVk-2, KfVk-3) and one historical site (KfVk-4). This activity may adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-4	Material handling	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to paleontological resources are likely as a result of this activity.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Open Pits	C-5	Development of Latte pit and Double Double pit	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-6	Dewatering of pits (as required)	No Interaction	Any Heritage Resources would already be appropriately mitigated if in potential conflict with a pit; therefore, dewatering of pits will not adversely affect the number and/or integrity of Heritage Resources within the LAA.	No Interaction	Any Heritage Resources would already be appropriately mitigated if in potential conflict with a pit; therefore, dewatering of pits does not adversely affect the number and/or integrity of Heritage Resources within the LAA.
Waste Rock Storage Facilities	C-7	Development and use of Alpha Waste Rock Storage Facility	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Stockpiles	C-8	Development and use of temporary organics stockpile for vegetation and topsoil	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-9	Development and use of frozen soils storage area	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-10	Development and use of run-of-mine stockpile for temporary storage of run-of-mine ore	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Crusher System	C-11	Construction and operation of crushing circuit	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
	C-12	Construction and operation of crushed ore stockpile	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Heap Leach Facility	C-13	Staged Heap Leach Facility construction, including associated event ponds, rainwater pond, and water management infrastructure	Potential Interaction	Areas in which this activity will occur overlap spatially with one archaeological site (KfV/k-1). This activity may adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-14	Heap leach pad loading	Potential Interaction	Areas in which this activity will occur overlap spatially with one archaeological site (KfV/k-1). This activity may adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Plant Site	C-15	Construction and operation of process plant	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
	C-16	Construction and operation of reagent storage area and on-site use of processing reagents	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-17	Construction and operation of laboratory, truck shop, and warehouse building	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-18	Construction and operation of power plant	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-19	Construction and operation of bulk fuel/LNG storage and on-site use of diesel fuel or LNG	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Camp Site	C-20	Construction and operation of dormitories and kitchen, dining, and recreation complex buildings; mine dry and office complex; emergency response and training building; fresh (potable) water and fire water systems; and sewage treatment plant	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-21	Construction and operation of waste management building and waste management area	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Bulk Explosive Storage Area	C-22	Construction of storage facilities for explosives components and on-site use of explosives	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Mine Site and Haul Roads	C-23	Upgrade, construction, and maintenance of Mine Camp Site service roads and haul roads	Potential Interaction	Areas in which this activity will occur overlap spatially with two historical sites (KfVj-1, KfVk-4). This activity has the potential to adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Site Water Management Infrastructure	C-24	Development and use of sedimentation ponds and conveyance structures	Potential Interaction	Areas in which this activity will occur overlap spatially with one archaeological site (KfV/k-1). This activity has the potential to adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbance and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-25	Initial supply of Heap Leach Facility process water	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-26	Ongoing use of site contact water (i.e., precipitation, stored rainwater) as Heap Leach Facility process water	Potential Interaction	Areas in which this activity will occur overlap spatially with one archaeological site (KfV/k-1). This activity may adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbance and/or clearing activities	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Ancillary Components	C-27	Upgrade of existing road sections for NAR including installation of culverts and bridges	Potential Interaction	Areas in which this activity will occur overlap spatially with 3 previously recorded archaeological sites (KjVi-1, KjVi-2, KIVI-6) and 19 historical sites: (KfVj-1, 1150/02/004, 1150/10/019 1150/10/020, 1150/10/021 1150/10/022, 1150/10/025 1150/10/047, 1150/10/052 1150/10/053, 1150/10/097 1150/10/098, 1150/10/099 1150/10/105, 1150/10/106 1150/10/108, 1150/10/109 1150/10/110, 1150/10/113). This activity may adversely affect the number and/or integrity of Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-28	Construction of new road sections for NAR, including installation of culverts and bridges	Potential Interaction	Areas in which this activity will occur overlap spatially with three archaeological sites discovered by the 2016 HRIA (KfVi-16, KgVi-1, and KjVj-2), four historical sites (KfVj-1, 1150/10/47, 1150/10/99, and 1150/10/108). This activity may adversely affect the number and/or integrity of the Heritage Resources through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-29	Development, operation, and maintenance of temporary work camps along NAR	Potential Interaction	Areas in which this activity will occur overlap spatially with one historical site (1150/02/004). This activity may adversely affect the number and/or integrity of the Heritage Resource through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
	C30	Vehicle traffic, including mobilization and re-supply of freight and consumables	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number or integrity of heritage resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-31	Development, operation, and maintenance of barge landing sites on Yukon River and Stewart River	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of identified archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-32	Barge traffic on Stewart River and Yukon River	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number and/or integrity of Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number and/or integrity of Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-33	Annual construction, operation, maintenance, and removal of Stewart River and Yukon River ice roads	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number and/or integrity of Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect the number and/or integrity of Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
	C-34	Construction and operation of 4.1 km of winter road on the south side of the Yukon River	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-35	Construction, operation, and maintenance of permanent bridge over Coffee Creek	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	C-36	Construction and maintenance of gravel airstrips	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
	C-37	Air traffic	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-38	Use of all laydown areas	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.
	C-39	Use of Coffee Exploration Camp	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to archaeological and/or historical resources are likely as a result of this activity.	No Interaction	This activity will not include ground disturbance or clearing activities that would affect Heritage Resources. No Project-related effects to paleontological resources are likely as a result of this activity.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Operation Phase						
Overall Mine Site	O-2	Excavation of contaminated soils followed by on-site treatment or temporary storage and off-site disposal	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of archaeological and/or historical resources would include any unmitigated alteration of these resources through ground disturbing and/or clearing activities.	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of paleontological resources would include any unmitigated alteration of these resources through ground disturbing and/or clearing activities.
Open Pits	O-4	Development of Kona pit and Supremo pit and continued development of Double Double pit and Latte pit	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Waste Rock Storage Facilities	O-9	Continued development and use of Alpha Waste Rock Storage Facility	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
	O-10	Development and use of Beta Waste Rock Storage Facility	Potential Interaction	The Beta Waste Rock Storage Facility overlaps spatially with one archaeological site (KfV/k-3). This activity may adversely affect the number and/or integrity of the Heritage Resource through alteration by ground disturbing and/or clearing activities.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.

Project Component	Project Activities		Archaeological and Historical Resources Subcomponent		Paleontological Resources Subcomponent	
	#	Description	Interaction Rating	Nature of Interaction and Potential Effect	Interaction Rating	Nature of Interaction and Potential Effect
Heap Leach Facility	O-16	Continued staged Heap Leach Facility construction, including related water management structures and year-round operation	No Interaction	Areas in which this activity will occur do not overlap spatially with identified archaeological and/or historical resources. No Project-related effects to the number or integrity of archaeological and/or historical resources are likely as a result of this activity.	Potential Interaction	The potential to encounter paleontological resources should be considered during ground disturbing and/or clearing activities, particularly within areas of permafrost.
Site Water Management Infrastructure	O-26	Installation and operation of water treatment facility for Heap Leach Facility rinse water	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of archaeological and/or historical resources would include any unmitigated alteration of these resources through ground disturbing and/or clearing activities.	Potential Interaction	The location of this Project activity is not yet defined and may overlap spatially with Heritage Resources. Adverse effects to the number and/or integrity of paleontological resources would include any unmitigated alteration of these resources through ground disturbing and/or clearing activities.

Project activities during the Construction and Operation Phases that do not result in any new or additional areas of ground disturbance, clearing, or vegetation removal will not interact with the Heritage Resources VC. It is not likely that any of the Project components associated with the Reclamation and Closure or Post-closure Phases will result in further disturbance of heritage resources within the LAA as there will be no additional ground disturbance, clearing, or vegetation removal during these phases. Project activities that have no interaction with Heritage Resources are not considered further in the assessment as they will have no short or long-term effects on the integrity of those resources.

With the exception of Project component numbers O-2, O-4, O-9, O-10, O-16, and O-26, activities associated with the Operation Phase, Reclamation and Closure Phase, and Post-closure Phase were not listed in **Table 4.1-2**. Potential interactions with known heritage resources during these phases should already have been mitigated prior to construction in accordance with applicable legislation, standards, and guidelines. Project components O-2, O-4, O-9, O-10, O-16, and O-26 that are associated with the Operation Phase are considered to have a potential interaction with Heritage Resources because they introduce new Project-related ground disturbance and/or clearing activities. Interactions likely to result in potential effects to heritage resources are discussed further in **Section 4.2**.

4.2 POTENTIAL PROJECT-RELATED EFFECTS

This section considers potential adverse Project-related effects on Heritage Resources arising from potential interactions, as identified in **Table 4.1-2** and in relation to the indicators listed in **Table 1.2-3**.

4.2.1 ARCHAEOLOGICAL AND HISTORICAL RESOURCES

This subsection describes the nature of potential Project-related effects to be considered with respect to archaeological and historical resources. Mitigation measures for each potential effect are described in **Section 4.3**.

4.2.1.1 *Alteration to Archaeological and Historical Resources during Construction and Operation Phases*

There is potential for adverse Project-related effects to both recorded and unrecorded archaeological and historical resources in the LAA, unless these sites are avoided or mitigated in accordance with applicable legislation, standards, and guidelines. The only potential effect to archaeological and historical resources is alteration during the Construction and Operation Phases of the Project. For the purposes of this assessment, alteration is considered any kind of damage, disturbance, removal, or mixing of sediments, or destruction that affects the number or integrity of any archaeological or historical resources. These resources are non-renewable and are susceptible to alteration by many types of development-related activities. Project-related Construction and Operation Phase activities with the potential to adversely affect archaeological or historical sites include clearing and grubbing, site grading, including depositing imported fills, as well as conducting construction-related ground disturbance, including the installing mine facilities, utilities, support facilities, and access roads.

The value of these resources is not measured in terms of individual artifacts, but rather in the information that is derived from the inter-relationships between the individual artifacts and features, their spatial distribution, and their depositional context. Any alteration to these inter-relationships during Project Construction and Operation can result in the permanent loss of information that is fundamental to understanding archaeological and historical resources, which is crucial to our understanding of the past.

The results of two HROAs (**Appendix 26-A1** and **Appendix 26-A3**), and two HRIAs (**Appendix 26-A2** and **Appendix 26-A4**) specific to the Project; include the identification of 29 archaeological and historical resources (**Table 3.3-1**) within the LAA, and an additional 13 archaeological and historical resources within the RAA. The consequence of non-mitigated effects could be permanent loss of heritage resources or changes in the integrity of heritage resources.

The Mine Site overlaps with archaeological sites KfVk-1, KfVk-2, and KfVk-3, and historical site KfVk-4. Consequently, ground-altering activities such as clearing, grubbing, and grading within the Mine Site footprint may adversely affect the number and integrity of these sites. Due to its location, archaeological site KfVk-1 may also interact with and be adversely affected by staged construction of the Heap Leach Facility; heap leach pad loading; and development and use of sedimentation ponds and conveyance structures.

The upgrade, construction, and maintenance of Mine Site service roads and haul roads will overlap spatially with two historical sites (KfVj-1, KfVj-4). These sites may be adversely affected as a result of the ground disturbance or clearing associated with these activities. Ground disturbance and clearing associated with the land farm (location to be determined) may also result in adverse effects.

The upgrade of existing road sections (177 km) along the NAR, including installation of culverts and bridges at watercourse crossings is not likely to affect existing archaeological site KIVi-6 (prehistoric lithics) located approximately 15 km south of the highway junction. A number of registered historic sites are located north of the 2016 HRIA (**Appendix 26-A4**) study area and outside of areas proposed for upgrade of existing roads, and therefore are not at risk. These include: 1150/10/019, 1150/10/020, 1150/10/021, 1150/10/022, 1150/10/025, 1150/10/105, 1150/10/106, 1150/10/109, 1150/10/110, and 1150/10/113.

Construction of new road sections (37 km) will overlap with and potentially affect one historical site (KfVj-1) and the following three archaeological sites, which were discovered during the preliminary 2016 HRIA (**Appendix 26-A4**):

- Site KfVi-16, is a precontact period First Nations campsite found during shovel testing (STL 9) of a 15 x 8 m landform. In total, 41 shovel tests (at spacing of 1 m to 2 m) were excavated, 10 of which were positive for cultural materials (non-diagnostic lithic debitage, n=22 and a small assemblage of burnt bone fragments n=10). In addition, one 1 x 1 m evaluative test unit was excavated over a positive shovel test (21 lithics recovered). The site area was flagged in the field with a 30-m

avoidance buffer on three accessible sides pending a response from Yukon Heritage. Avoidance of the KfVi-16 site area and 30-m buffer zone is recommended.

- Site KgVi-1, is a precontact period First Nations isolated find of a lithic scraper. Bracketing shovel tests (STL 7) were excavated at 1-m intervals around the positive test, but no additional artifacts were recovered. The positive shovel test was flagged in the field with a 30-m avoidance buffer pending a response from Yukon Heritage. Avoidance of the KgVi-1 site area and 30-m buffer zone is recommended.
- Site KjVj-2, is a precontact period First Nations lithic scatter. From a total of 16 shovel tests in a 15 x 5 m landform along a ridge, a single positive shovel test (STL 3) yielded an assemblage of 22 pieces of non-diagnostic lithic debitage (see Appendix 26-A4). A 30-m buffer was established around this site and the proposed road was rerouted into an area of low heritage potential immediately east of the buffered site area. Continued avoidance of the KjVj-2 site area and 30-m buffer zone is recommended.

The development of quarries for road construction along the NAR will overlap with and potentially affect two archaeological sites (KjVi-1, KjVi-2). Sites KjVi-1 (prehistoric lithics and faunal remains) and KjVi-2 (prehistoric lithics) were identified in the 2016 HROA (**Appendix 26-A3**) as in the ROW, in close proximity to shovel tests (STL 1 and STL 2) undertaken in 2016 HRIA (**Appendix 26-A4**); field work in 2017 will revisit these two archaeological sites and confirm whether or not they fall outside the ROW.

The 2016 HRIA (**Appendix 26-A4**) also confirmed that two new historic period sites (Hist 1 and Hist 4) are within proposed ground disturbance zones. Avoidance is recommended for both, and Hist 4 is recommended for addition to the Yukon Historic Sites Index. The following historical sites (and four previously undocumented historic period structures/sites identified) will not be affected and no further heritage resource work was recommended:

- 115J-14-001 (Coffee Creek Telegraph Office, 200 m outside ROW)
- 115J-15-001 (Ballarat Creek Cabin 1, 640 m outside ROW)
- 115J-15-002 (Ballarat Creek Cabin 2, 550 m outside ROW)
- 115O-02-004 (Barker Creek Building, 20 m outside ROW)
- 115O-10-045 (Australia-Sulphur Ditch Dominion Syphon Discharge, 600 m outside ROW)
- 115O-10-046 (Australia-Sulphur Ditch Dominion Syphon Pumphouse 280 m outside ROW)
- 115O-10-047 (Dredge 6, 50 m outside ROW)
- 115O-10-052 (Eureka Creek No. 4 Cabin, 25 m outside ROW)
- 115O-10-053 (Eureka Creek No. 3 Cabin, 50 m outside ROW)
- 115O-10-054 (Eureka Creek No. 2 Cabin, 100 m outside ROW)
- 115O-10-055 (Eureka Creek No. 4 Cabin, 215 m outside ROW)
- 115O-10-097 (Granville West Foundation F-2 and F-3, 75 m outside ROW)
- 115O-10-098 (Granville West Collapsed Building B-2, 75 m outside ROW)

- 115O-10-099 (Granville West Foundation F-2 and F-3, 75 m outside ROW)
- 115O-10-107 (Australia-Sulphur Ditch House, 280 m outside ROW)
- 115O-10-108 (Dredge Yukon Gold #4, 110 m outside ROW)
- 115O-10-119 (Australia-Sulphur Ditch Diversion 2, 700 m outside ROW)
- 116B-01-009 (South Fork Intake and Camp Building, 700 m outside ROW)
- 116B-01-010 (South Fork Intake and Camp Outhouse, 700 m outside ROW)
- 116B-01-015 (South Fork Intake Electric Shovel 2, 700 m outside ROW).

4.2.2 PALEONTOLOGICAL RESOURCES

This section describes the nature of potential Project-related effects to be considered with respect to paleontological resources. Mitigation measures for each potential effect are described in **Section 4.3**.

4.2.2.1 *Alteration to Paleontological Resources during Construction and Operation Phases*

There is potential for adverse Project-related effects to unrecorded paleontological resources that may be present in the LAA, unless these sites are avoided or mitigated in accordance with applicable legislation, standards, and guidelines. The only potential effect to paleontological resources is alteration during Construction and Operation Phases of the Project. For the purposes of this assessment, alteration is considered any kind of damage, disturbance, removal, or mixing of sediments, or destruction that affects the number or integrity of any paleontological resources. Paleontological resources are non-renewable and are susceptible to alteration by many types of development-related activities. Project-related Construction and Operation activities that may adversely effect paleontological resources include clearing and grubbing, site grading, depositing imported fills, as well as conducting construction-related ground disturbance, including installing mine facilities, utilities, support facilities, and access roads (see **Table 4.1-2** for a complete list). While the effects may occur only once, their duration will be permanent, and they will be irreversible. The consequence of non-mitigated effects could be permanent loss of paleontological resources or a change in the integrity of a resource.

Paleontological resource potential was not determined during baseline studies specific to the Project (although such resources are associated with permafrost areas), and there are no known paleontological resources present. The potential for development to conflict with as of yet undiscovered paleontological resources must be considered, however, particularly for any Project-related activities that overlap with areas of permafrost.

4.3 MITIGATION MEASURES

This section describes mitigation measures consistent with definitions provided by YESAB (i.e., measures for the elimination, reduction, or control of adverse environmental or socio-economic effects). Heritage resources are protected from non-permitted alteration by the *Historic Resources Act* and the Archaeological Sites Regulation. Methods designed to mitigate adverse effects to heritage resources are described below and are summarized in **Table 4.3-1**.

More detail regarding mitigation measures with respect to site-specific requirements will be provided in the Heritage Resources Protection Plan (HRPP), which is currently in development, prior to Project construction.

Mitigation measures for heritage resources following relevant regulatory approvals, Project-specific HRIA reports and First Nation consultation advice, will be implemented prior to any ground disturbance or clearing activities. The mitigation measures described below are solely for the management and protection of heritage resources and are not applicable to traditional or contemporary land and resource use by First Nations. Relevant mitigation measures for traditional land and resource use are outlined in **Appendix 24-A**.

4.3.1 PROJECT DESIGN

Kaminak Gold Corporation, a wholly owned subsidiary of Goldcorp Inc. (Goldcorp or Proponent), has limited the potential effects to heritage resources through the design of the Project layout, including measures to limit the size of the Project footprint, and utilize the existing access routes as components of the NAR. Rerouting of the NAR corridor has also been undertaken to avoid heritage sites (e.g., Site KjVj-2). Such measures reduce the potential extent of alterations to archaeological, historical, and paleontological resources. In addition, potential alterations to paleontological resources will be reduced by consolidating the Waste Rock Storage Facilities at the Alpha Waste Rock Storage Facility location and using more area that is not perennially frozen.

4.3.2 COMPLETE HERITAGE RESOURCES IMPACT ASSESSMENT FOR NORTHERN ACCESS ROUTE AND CHANGES TO THE FINAL PROJECT FOOTPRINT

A completed HRIA for the NAR and any changes to the final Project footprint will provide recommendations for site-specific mitigation measures for any newly identified archaeological and historical resources in conflict with proposed ground disturbing or clearing activities for the Project. Additional field work will be undertaken in 2017 to support preliminary heritage work on the NAR (**Appendix 26-A4**). The scope of 2017 field work will be determined after consultation with the Heritage Resources Unit, and will include additional stops and shovel testing at areas of archaeological potential and previously disturbed sites. The scope of the HRIA in other areas will be determined on completion of the final footprint.

4.3.3 CONSULT ON APPROPRIATE MITIGATION MEASURES

Consultations will be undertaken with First Nations and regulators regarding the choice of appropriate mitigation measures for all heritage resource sites that overlap with areas of proposed ground disturbance. This will include consideration of the remaining mitigation measures listed below in order of preference.

4.3.4 AVOID KNOWN ARCHAEOLOGICAL AND HISTORICAL RESOURCES

Avoid known heritage resources (including archaeological sites KfVk-1, KfVk-2, KfVk-3, KfVi-16, KgVi-1, KjVj-2, and historical site KfVk-4) through Project redesign. Use flagging tape or physical barriers to mark a 30-m buffer around the resources to be avoided. If the site areas and site buffer can be avoided, no further heritage resource assessments are recommended.

4.3.5 SYSTEMATIC DATA RECOVERY

If the resource sites cannot be avoided, systematic data recovery (SDR) will be undertaken prior to any potentially ground-altering development activities. All SDR studies will be conducted under the authority of a Historic Resources Act Class 2 permit and in compliance with the *Tr'ondëk Hwëch'in Heritage Act*. An SDR program is tailored to the individual Project-related effect and to the individual heritage resource(s) in question, and commonly involves:

- Scientific excavation and recovery of some or all portions of the resources to be affected
- Collection and analyses of artifacts, animal remains, plant remains, and other archaeological, and historical remains
- Collection and processing of carbon (e.g., wood or bone) samples for dating
- Completion of other appropriate specialized analytical processes (e.g., geochemical analyses of stone tools, residue analysis)
- Cataloguing of all collected artifacts and their subsequent storage in an approved facility.

Where SDR is carried out, a final permit report is required by the regulator (Yukon Government Cultural Services Branch) to document collected data and the results of all analytical processes. This report will be available to First Nations, regulators, and other archaeologists.

4.3.6 IMPLEMENT MONITORING PLANS FOR CONSTRUCTION AND OPERATION PHASE CLEARING AND GROUND DISTURBANCE ACTIVITIES

If site avoidance is not feasible or practical, and SDR is not warranted because the heritage site has low scientific value, or SDR has occurred and monitoring is warranted, Project interactions will be mitigated through a program of archaeological monitoring carried out during development. Archaeological monitoring consists of visual inspection by an archaeologist during Construction so that archaeological and historical resources can be appropriately managed if encountered. Where archaeological monitoring is carried out, final permit reports will be submitted to the Cultural Services Branch as required to document collected

data, and the results of all analytical processes. Reports will be available to First Nations, regulators, and other archaeologists.

4.3.7 IMPLEMENT PROJECT-SPECIFIC HERITAGE RESOURCES PROTECTION PLAN AND CHANCE FIND PROTOCOL

The HRPP (currently in development for Project licensing) provides methods for protecting known heritage resources (archaeological, historical, and paleontological), and includes a Chance Find Protocol (CFP). The CFP provides those involved in ground-disturbing activities with a framework for identifying cultural materials, and assists in avoiding unforeseen disturbance to heritage resources. The protocol provides descriptive information regarding cultural materials commonly found in the region and those most likely to be encountered in the Project area. Both documents provide Project personnel with procedures on what to do and who to contact in the event that previously unrecorded heritage resources are inadvertently discovered during Project Construction or Operation.

4.3.8 IMPLEMENT SITE-SPECIFIC MEASURES FOR PALEONTOLOGICAL RESOURCES

The guidance provided in the *Yukon Mineral Exploration Best Management Practices for Heritage Resources* (Government of Yukon 2010) will be followed. Goldcorp will conduct the following activities:

- In the event that bone and tusk is uncovered, collect as much of the animal(s) as can be located and preserved. If possible, verify whether it is a single intact skeleton or whether multiple animals are represented.
- In the event that a single intact skeleton is found, or mummified remains that preserve the hide or flesh of the animal, avoid further disturbance by protecting the remains through buffering from Project activities, or removing with intact surrounding sediments and storing.
- Advise the Yukon Paleontology office of all findings, and store or protect as advised until they can be collected and conserved by the Yukon Paleontology office.

4.3.9 SUMMARY OF MITIGATION MEASURES

All site-specific mitigation measures for Heritage Resources will be established following appropriate Yukon regulatory procedures and policies, and will be completed to the satisfaction of the Government of Yukon and affected First Nations, consistent with the Project's Heritage Resources Protection Plan (summarized in **Section 31.0 Environmental and Socio-economic Management Program** of the Project Proposal). Where a potential resource-altering activity is proposed within the boundaries and/or associated buffers of an archaeological and historical resource, mitigation will occur under the authority of a Class 2 permit issued and administered by the Manager of Heritage Resources Unit, Cultural Services Branch, Department of Tourism and Culture, prior to construction, and in compliance with the *Tr'ondëk Hwëch'in Heritage Act*. After appropriate mitigation, the potential effects will be fully mitigated, and there will be no adverse residual effect to the Heritage Resources VC and its subcomponents (**Table 4.3-1**).

Table 4.3-1 Summary of Potential Effects and Mitigation Measures for Heritage Resources

Summary of Potential Effect	Project Components	Contributing Project Activities	Proposed Mitigation Measures	Detectable / Measurable Residual Effect (Yes / No)
Heritage Resources				
Construction Phase				
Alteration to Archaeological and Historical Resources	Overall Mine Site / Construction	Clearing, grubbing, grading, excavation, stockpiles, construction of ancillary facilities	<ul style="list-style-type: none"> • Complete HRIA for remaining/final Project footprint • Consult on appropriate mitigation measures • Avoid known archaeological and historical resources • Conduct systematic data recovery • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP • Monitoring Plans during Construction or Operation Phases 	No
	Northern Access Route / Construction	Clearing, grubbing, grading, excavation, stockpiles, ancillary features, construction of road segments	<ul style="list-style-type: none"> • Complete HRIA for NAR and remaining/final Project footprint • Consult on appropriate mitigation measures • Avoid known archaeological and historical resources • Conduct systematic data recovery • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP • Monitor implementation of plans during Construction and Operation Phases 	No
Alteration to Paleontological Resources	Overall Mine Site / Construction	Clearing, grubbing, grading, excavation, stockpiles, construction of ancillary facilities	<ul style="list-style-type: none"> • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP 	No
	Northern Access Route / Construction	Clearing, grubbing, grading, excavation, stockpiles, ancillary features, construction of road segments	<ul style="list-style-type: none"> • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP 	No

Summary of Potential Effect	Project Components	Contributing Project Activities	Proposed Mitigation Measures	Detectable / Measurable Residual Effect (Yes / No)
Operation Phase				
Alteration to Archaeological and Historical Resources	Overall Mine Site / Operation	Clearing, grubbing, grading, excavation, stockpiles, construction of ancillary facilities	<ul style="list-style-type: none"> • Complete HRIA for remaining/final Project footprint • Consult on appropriate mitigation measures • Avoid known archaeological and historical resources • Conduct systematic data recovery • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP • Monitor implementation of plans during Construction or Operation Phases 	No
	Northern Access Route / Operation	Clearing, grubbing, grading, excavation, stockpiles, ancillary features, construction of road segments	<ul style="list-style-type: none"> • Complete HRIA for NAR and remaining/final Project footprint • Consult on appropriate mitigation measures • Avoid known archaeological and historical resources • Conduct systematic data recovery • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP • Monitor implementation of Plans during Construction or Operation Phases 	No
Alteration to Paleontological Resources	Overall Mine Site / Operation	Clearing, grubbing, grading, excavation, stockpiles, construction of ancillary facilities	<ul style="list-style-type: none"> • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP 	No
	Northern Access Route / Operation	Clearing, grubbing, grading, excavation, stockpiles, ancillary features, construction of road segments	<ul style="list-style-type: none"> • Develop and implement Project-specific Heritage Resources Protection Plan, including a CFP 	No
Reclamation and Closure Phase				
N/A				
Post-closure Phase				
N/A				

The Government of Yukon requires mitigation of all potential effects to protected heritage resources within the LAA before construction. Archaeological and historical resource investigations and mitigations will be conducted prior to any ground disturbance or clearing activities, and some resources may also require monitoring by an archaeologist during these activities. Previously unrecorded paleontological resources will be managed through the HRPP and CFP. After mitigation (as outlined in **Section 4.3**) is complete to the satisfaction of the Government of Yukon and relevant First Nations, clearance is granted for all subsequent activities relating to Project phases. As a result, residual effects to heritage resources will likely be fully mitigated; therefore, potential residual effects on heritage resources will not be discussed further in this assessment and a residual effects assessment is not required.

4.3.10 SUMMARY OF PROJECT-RELATED RESIDUAL ADVERSE EFFECTS AND THEIR SIGNIFICANCE

Based on the determination that potential effects to heritage resources will be fully mitigated in accordance with applicable legislation and guidelines, it is concluded that no potential for residual or Project-related cumulative effects on heritage resources are likely to result from the Project.

5.0 CUMULATIVE EFFECTS ASSESSMENT

Cumulative effects result from the interactions between Project-related residual effects and the incremental effects on the VC of other past, present, and reasonably foreseeable projects and activities. Effects on individual heritage resources resulting from the proposed Project will be fully mitigated through avoidance and the application of mitigation procedures following the development of the HRPP (**Section 31.0 Environmental and Socio-economic Management Program** of the Project Proposal) and as required by Yukon legislation such that no residual effects are likely. Other projects in the vicinity of the LAA must also comply with Yukon legislation and relevant First Nations guidance, and must similarly minimize residual effects to heritage resources; therefore, the Project is not likely to contribute to residual effects from other projects and activities in a way that would result in adverse cumulative effects, and a cumulative effects assessment is not warranted.

5.1 SUMMARY OF RESIDUAL CUMULATIVE EFFECTS AND THEIR SIGNIFICANCE

Considering Project-related effects and the implementation of mitigation measures and regulatory provisions, cumulative effects to Heritage Resources are not likely.

6.0 SUMMARY OF EFFECTS ASSESSMENT ON HERITAGE RESOURCES

Activities related to ground disturbance or clearing activities during the Construction and Operation Phases may adversely affect heritage resources by altering the resource. The effects assessment outlined in **Section 2.0** describes these interactions and proposes appropriate mitigation measures to eliminate and control potential adverse effects.

Results from two HROAs (**Appendices 26-A1** and **26-A3**) and the two HRIAs (**Appendix 26-A2** and **26-A4**) of the Project to date indicate that there are 26 archaeological and historical resources within the LAA.

Potential effects of the Project on Heritage Resources will be mitigated to standards as defined and overseen by the Cultural Services Branch, as well as any standards agreed upon with relevant First Nations and set out in the HRPP. With regard to archaeological and historical resources, potential effects will be mitigated prior to construction through avoidance, an SDR program, or archaeological monitoring as appropriate, so that archaeological and historical data regarding these resources is secured. Monitoring of construction works at selected archaeological and historical resources will support the mitigation plan being carried out as appropriate; make it possible to retrieve any archaeological samples during construction; and confirm that construction work ceases if substantial unanticipated archaeological materials or features are unearthed so the mitigation plan can be amended. With regard to paleontological resources, best management practices outlined by the Government of Yukon (2010) will be implemented.

With the implementation of mitigation, residual effects on heritage resources are not likely to be measurable. Since the residual effects on heritage resources are not considered to be measurable, there will be no cumulative effects due to interactions with the residual effects of other projects and activities.

Provided that site avoidance and/or site mitigation (through SDR or archaeological monitoring) recommendations are followed, no residual effects to heritage resources are likely.

Key assumptions in the effects assessment are identified as follows:

- The LAA will receive full archaeological assessment through the HRIA process before construction, and any known or previously identified sites will be avoided and/or mitigated, resulting in negligible residual effects.
- A Project-specific HRPP that considers applicable Yukon guidelines and requirements and input from First Nations consultation will be developed and implemented. Heritage resources will be avoided or otherwise mitigated following procedures provided in the HRPP, thus resulting in negligible residual effects.
- A CFP, appended to the HRPP, will address the possibility of chance archaeological and historical resources being discovered during construction activities and will mitigate residual effects on paleontological resources.

7.0 EFFECTS MONITORING AND ADAPTIVE MANAGEMENT

Effects monitoring and adaptive management programs verify the accuracy of residual effects predictions, assess the efficacy of proposed mitigation measures, and support implementation of any additional mitigation measures. There are no planned follow-up or effects monitoring programs for Heritage Resources since residual effects are not likely to be measureable and there is a low probability that previously unidentified heritage resources will be found within the LAA after completion of the required HRIA for the NAR. Following are key commitments to protect Heritage Resources:

- Completion of an HRIA under the authority of a Yukon Archaeological Sites Regulation permit
- Development and implementation of a Project-specific HRPP, including a CFP.

Management programs for specific known or presently unidentified resources will be coordinated through the Project-specific HRPP in accordance with Yukon heritage legislation. In consultation with the Cultural Services Branch and relevant First Nations, it may be decided that best practice will include an effects monitoring program for Project-designed resource avoidance. Heritage resources managed through avoidance but within 100 m of the LAA may be inspected annually during the Construction and Operation Phases, and a brief inspection report with photographs may be kept on file with the archaeologist. If any disturbance, whether natural or anthropogenic, has occurred, stakeholder groups will be notified.

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APPENDIX 26-A-1

Heritage Resources Overview Assessment and Preliminary Field Reconnaissance of the Kaminak Gold Coffee Project Conducted Under Permit 10-23ASR



Archaeological Consulting

**Heritage Resources Overview Assessment and Preliminary Field
Reconnaissance of the Kaminak Gold Coffee Project Conducted
Under Permit 10-23ASR.**

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Prepared by: Matrix Research Ltd.

Prepared for: Kaminak Gold Corporation

December, 2010

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Matrix Research Ltd. would like to thank all of the people from the various organizations who contributed to the project. The project proponent was Kaminak Gold Corporation. Tim Smith and Tom Bokenfohr from Kaminak supplied information and mapping for the study area and Kristy Emery and Vanessa Pickering from Catana Consulting coordinated travel and logistics.

Lee Whalen, Heritage Officer for Tr'ondëk Hwëch'in First Nation, played a large role in initiating and discussing the scope of the assessment and assisted the project by providing traditional land use and heritage information. Lee also participated in the fieldwork and coordinated an Elders tour.

Ruth Gotthardt and Chris Thomas at the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon, discussed the project with us and provided information on past heritage resources work in the study area. We thank them for their input and comments.

Kaminak Gold Corporation, their camp, and staff, were very accommodating by providing room and board, communication services, and helicopter access. The project would not have gone as smoothly without these amenities.

The opinions, recommendations, omissions, and / or errors in this report are those of Matrix Research Ltd. alone and do not necessarily reflect the positions held by Kaminak Gold Corporation, Tr'ondëk Hwëch'in First Nation, or the Government of Yukon.

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MANAGEMENT SUMMARY

This report details the results of a Heritage Resources Overview Assessment (HROA) and Preliminary Field Reconnaissance (PFR) of the Kaminak Gold Coffee claim area (Map 1).

The PFR was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process. The HROA was also requested for the purposes of managing potential conflicts with heritage resources during future mining related developments in the study area. The objectives of this heritage study were as follows: 1) classification of the study area land base into zones of heritage potential through the HROA, 2) refinement of the HROA through an aerial overview and ground-truthing during the PFR, and 3) documentation of above- and below-ground heritage resources during the PFR of the Kaminak Gold Coffee claim area.

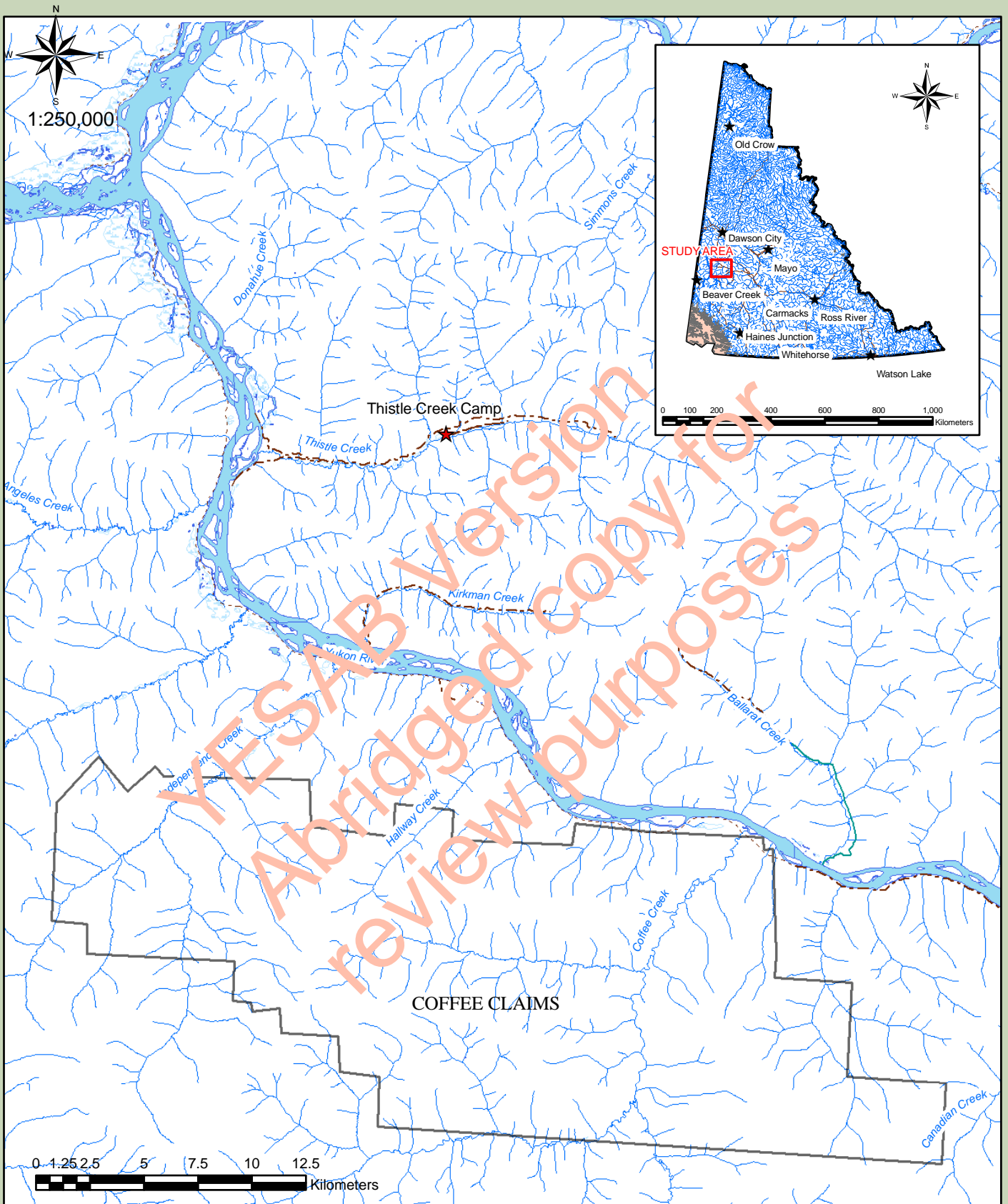
As a result of the HROA, the entire study area has been classified into zones of heritage resources potential, either high, moderate, or low. The classification scheme was refined in-field during a helicopter aerial overview of the study area prior to ground-truthing. Further heritage resources investigations are recommended for moderate and high heritage resources potential areas prior to any potentially ground-altering development activities. Following the HROA, PFR fieldwork was conducted from August 31st to September 4th, 2010 on the refined areas of moderate and high heritage resources potential including visual inspection on foot for above-ground heritage resources and, if deemed necessary, shovel testing to identify below-ground heritage resources. Five heritage sites were identified during the PFR (**KfVj-1** to **4**, and **KfVj-1**): one is a post-contact heritage site (**KfVj-1**) consisting of early to mid-twentieth century historic artifacts, three are pre-contact heritage sites (**KfVj-1**, **2**, and **3**) consisting of pre-contact lithic artifacts, and one is a post-WWII plane wreck (**KfVj-4**) consisting of fuselage from an SB-17G.

Heritage resources are protected from non-permitted alterations or disturbance by the *Historic Resources Act* (Government of Yukon 2002) and the *Archaeological Sites Regulations* (Government of Yukon 2003). To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon and Tr'ondëk Hwëch'in First Nation must be contacted as soon as possible with information on the heritage remains and nature of disturbance. Information on the identification of heritage resources can be found in a publication entitled *Handbook for the Identification of Heritage Sites and Features* (Gotthardt and Thomas 2005).

This study was designed as a heritage resources overview assessment and preliminary field reconnaissance and was not intended to evaluate or comment on traditional Aboriginal use of

the areas in which development is proposed. The results of this study, therefore, should not be considered valid for that purpose.

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Coffee Claims Study Area	Wetland
Main Road	River/Stream
	Trail

MAP 1: Coffee Claim Study Area			
	MAPSHEETS:	LOCATION: Yukon River	PROPONENT: Kaminak Gold Corporation
	NTS: 115 J13, J14, J15, 115 O/2, O/3, O/4	UTM: E 587418 N 6970957 PROJECTION: NAD83 Zone 7	JOB #: M10-087-Coffee Gold

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- Appendix E: Modified Artifact and Debitage Catalogue**

1.0 INTRODUCTION

This report details the results of a Heritage Resources Overview Assessment (HROA) and Preliminary Field Reconnaissance (PFR) of the Kaminak Gold Coffee Claim area. This study was conducted at the request of Kaminak Gold Corporation.

The Kaminak Gold Coffee property is located approximately 480 km north of Whitehorse and 120 km southwest of Dawson City in west central Yukon (Map 1). The Coffee property is 0.2 to 12 km west of the Yukon River and encompasses the drainages of Coffee, Halfway, and Independence Creeks. Current facilities include numerous helicopter platforms and drill pads. A tent camp and storage facilities are proposed on terrain within the claim area approximately 300 m north of Coffee Creek and 800 m west of Yukon River.

The PFR was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process. The HROA was also requested for the purposes of managing potential conflicts with heritage resources during future mining related development in the study area. The objectives of this heritage study were as follows: 1) classification of the study area land base into zones of heritage potential through the HROA, 2) refinement of the HROA through an aerial overview and ground-truthing during the PFR, and 3) documentation of above- and below-ground heritage resources during the PFR of the Kaminak Gold Coffee Claim area.

Fieldwork was conducted by Todd Kristensen and Jeffery Shaughnessy of Matrix Research Ltd. from August 31st to September 4th, 2010 with the assistance of Lee Whalen, Heritage Officer for Tr'ondëk Hwëch'in First Nation, on September 1st and 2nd.

1.1 Report Format and Distribution

This report is divided into seven sections and six appendices.

Section 1: Introduction

This section introduces the heritage assessment study and discusses the work undertaken, duration of the study, relevant legislative references and definitions, and a summary of contacts made with First Nations.

Section 2: Heritage Assessment Description

This section discusses the intent of the heritage assessment in relation to the proposed development.

Section 3: Proposed Development Area

This section describes the location of the HROA and PFR study area. A brief overview of previous archaeology within the area is also presented.

Section 4: Methodology

This section discusses the methods used while conducting the HROA and PFR.

Section 5: Results

This section summarizes the results of the HROA and contains descriptions of the locations assessed during the 2010 PFR, including details on the physical setting, methodology, and results. Five heritage sites were recorded during the PFR. A map is provided that shows the survey area and location of survey transects.

Section 6: Heritage Resource Management Recommendations

This section provides recommendations for the management of heritage resources and heritage potential identified during the HROA and PFR.

Section 7: References Cited

This section lists bibliographic information for all references cited in the text.

Appendices

Included with this report are six appendices containing a glossary of archaeological terms, heritage site maps, pre-contact artifact photographs, heritage assessment photographs, catalogues for pre-contact lithic artifacts, and an independent report regarding the SB-17G plane crash prepared by Beairsto (2003).

1.2 Legislative References

Legislation that ensures the management and protection of archaeological and historical resources is found in the *Historic Resources Act* (Government of Yukon 2002) and *Archaeological Sites Regulations* (Government of Yukon 2003). This legislation applies to archaeological and historical sites older than 45 years whether they are located on public or private land. The permit for this Preliminary Field Reconnaissance (10-23ASR) was issued and administered by the Manager of Heritage Resource Unit, Cultural Services Branch, Department of Tourism and Culture.

1.3 First Nations Referral and Correspondence

The area assessed during this study is located within the traditional territory of Tr'ondëk Hwëch'in

First Nation (THFN). Information on the proposed development was referred to THFN as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) review process of proposed developments. Matrix Research Ltd. contacted THFN to initiate discussion of a heritage resources overview assessment and to obtain any existing traditional land use information or oral history pertinent to the study area. Tr'ondëk Hwëch'in First Nation was also provided a copy of the Yukon Archaeological Sites Regulations permit application for review prior to the heritage assessment. A representative from the First Nation was requested to assist with fieldwork; Lee Whalen, Heritage Officer of the Tr'ondëk Hwëch'in First Nation (THFN), participated in fieldwork from September 1st to 2nd.

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2.0 HERITAGE ASSESSMENT DESCRIPTION

The aim of a Heritage Resources Overview Assessment (HROA) is to assess the potential for a proposed development area to contain heritage resources (such as archaeological or historic sites) and to make recommendations concerning the need and scope for further heritage studies.

The objective of a Preliminary Field Reconnaissance (PFR) is to support the HROA by providing baseline field data that is not available from extant sources, to ground-truth predictions of heritage potential made during the HROA, and to provide information necessary to design further heritage assessments. The HROA was intended to classify the entire land base within the Coffee Claim area into heritage potential zones while the PFR was conducted within portions of the study area to identify heritage resources and refine the HROA.

The Kaminak Gold Coffee Claim area is currently in the exploration stage. Drilling, trenching and soil sampling programs were conducted in 2010. Current facilities include helicopter platforms, drill pads, and a proposed tent camp/storage facility. Exploration activity is supported by helicopter as there is no road access.

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3.0 PROPOSED DEVELOPMENT AREA

3.1 Natural Setting

The proposed development is located within the Klondike Plateau Ecoregion of the Yukon (Smith *et al.* 2004) southwest of Dawson City. This ecoregion is characterized by smooth-topped ridges and deep, narrow v-shaped valleys that are characteristic of unglaciated areas. Elevation ranges from 300 – 2000 m above sea level (asl) with most uplands being 1200 – 1700 m asl. Forest cover is comprised mainly of black and white spruce with mixed stands containing balsam polar, birch, and aspen up to elevations of 1200 m asl. At higher elevations alpine tundra plant communities are present. Temperatures in the ecoregion range from -60°C to +35°C, with valley bottoms experiencing more extreme ranges in temperature than uplands. Annual average precipitation is 300 – 500 mm. Sediments in the major river valleys consist of alluvium and glacial outwash, whereas tributary valleys consist of thick colluviums and uplands consist of thin blankets of weathered bedrock. A thin layer of loess is present at most sites. Permafrost is widespread but discontinuous and absent from well-drained slopes.

3.2 Cultural Setting

The proposed development is situated within the traditional territory of the Tr'ondëk Hwëch'in First Nation. The Tr'ondëk Hwëch'in are Hän speakers belonging to the Athapaskan language family. Tr'ondëk Hwëch'in seasonal subsistence round involved late spring / summer aggregation of the group (20-50 individuals) at selected fishing camps along the Yukon River chosen for the availability of migrating salmon. Salmon runs up the Yukon River located within Tr'ondëk Hwëch'in traditional territory include Chinook and Spring salmon in late June / July followed by Chum salmon in August / September (Osgood 1971). Settlement near these locations typically involved several families who used the same fishing location each year. Large quantities of salmon were caught, dried and stored during this time of year in preparation for the coming winter. Berry gathering and preservation was also carried out at the end of the summer and into the fall. A variety of berries was available and constituted an important food source. The fall saw a dispersal of the group as food stores required additions or replenishment. The Tr'ondëk Hwëch'in moved into the highlands along tributaries of the Yukon River to hunt caribou, moose, and Dall sheep. These animals were hunted for hides and food. Come winter, some Tr'ondëk Hwëch'in moved back to semi-permanent fishing camps located along the Yukon River. Two families would winter in a pole framed, moss covered house and subsist on the cached salmon, berries and game meat from the summer and fall. The family groups dispersed as winter food stores required additions or replenishment and lone game were hunted. During the spring, small game and fresh water fish were sought, usually at nearby lakes and streams and in the surrounding forests. Returning waterfowl, beaver, and muskrat were among the small game animals taken. Late spring was the time when the Tr'ondëk Hwëch'in moved back to the Yukon River and prepared their canoes, fish weirs and nets in anticipation of the returning salmon runs (Hammer 2002).

Information on traditional land use is extremely limited for the study area, in part due to the relatively early replacement of traditional activities with mining and later logging for steamboat transport along Yukon River. No traditional land use sites have been recorded although oral history accounts mention traditional sites in the study area (Whalen pers. comm., 2010). Most available information is in reference to areas beyond the Coffee Claim (Beaumont 2009), but it is likely that the area was used for traditional activities such as hunting, fishing, and gathering of locally available resources.

3.3 Previous Heritage Work

No previous heritage studies have been undertaken in the project area and no archaeological sites have been identified in the vicinity. The nearest heritage resources include 20 archaeological sites associated with uplands and valleys located to the north-northeast. Eighteen of these sites were recorded by Matrix Research Ltd. in 2009 and 2010 and include pre-contact stone artifacts and post-contact mining equipment and structures (Heffner 2010, Kristensen and Heffner 2010).

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4.0 METHODOLOGY

The following section describes the methods used for the Heritage Resources Overview Assessment (HROA) and Preliminary Field Reconnaissance (PFR). The background information was combined with aerial and previous ground observations to produce a preliminary assessment of heritage resources potential in the study area. The results of the HROA and subsequent PFR of the Kaminak Gold Coffee Project are presented in Section 5.0.

4.1 Heritage Resources Overview Assessment

All available maps, digital elevation models, satellite imagery, ethnographies, histories, and archaeological reports for the study area were examined. Criteria used to determine potential for heritage resources included: proximity to streams and water bodies, known heritage sites, known Aboriginal or historic trails, topography, vegetation cover, and presence of fish and wildlife habitat.

4.2 Limitations of the HROA

Given that there are no previously recorded sites within the specific study area the criteria used to determine heritage resources potential during this study was primarily derived from previous experience in comparable terrain. Our current understanding of past settlement patterns and land use of the area is significantly limited by the lack of ethnographic data, the scarcity of heritage studies and known sites recorded in the area, and the lack of detailed information on environmental and geomorphological changes throughout the glacial and post-glacial periods.

When viewing the HROA results in the broader study area it is important to note that low potential does not mean no potential. It is possible for heritage sites to be located outside of areas identified as having moderate or high heritage resources potential. To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon and Tr'ondëk Hwëch'in First Nation must be contacted immediately with information on the heritage remains and the nature of the disturbance.

4.3 Field Procedures

Aerial Survey

The first stage of the PFR was an aerial survey of the study area, which consisted of flying along major creeks, tributary streams, and heights of land at an elevation of about 150 m. The flight paths were recorded with a handheld GPS unit and are shown on Map 2. During the flight, areas exhibiting moderate or high heritage resources potential were charted on a map, as were all above-ground heritage features

visible from the air. Delineation of the high potential areas was primarily based on topographic and hydrological characteristics. Distinct topographic features, well-drained sediments, and proximity to major hydrological features were all determining criteria for heritage resources potential. Typically, these characteristics could be clearly discerned from the air. Many of the topographic features were prominent on the landscape and well-drained sediments were identifiable based on distinct changes in vegetation cover. Areas charted on a map during the flight were subsequently digitized and transposed over available digital imagery of the study area. The use of the imagery helped to ensure that the areas deemed to be of high heritage resources potential were accurately plotted.

Pedestrian Survey

During the aerial survey, several locations were selected for pedestrian survey to confirm the observations made from the air and/or to further assess the heritage resources potential of these locations. Pedestrian survey was judgemental in design and the brief traverses targeted notable topographic features (e.g., saddles, knolls, and ridge tops) and surface exposures (e.g., tree throws, cut banks, wind exposures, and areas with limited soil development). These field efforts focused on recording terrain attributes and vegetation. A GPS unit was used to record all pedestrian transects and the location of these are indicated on Map 2.

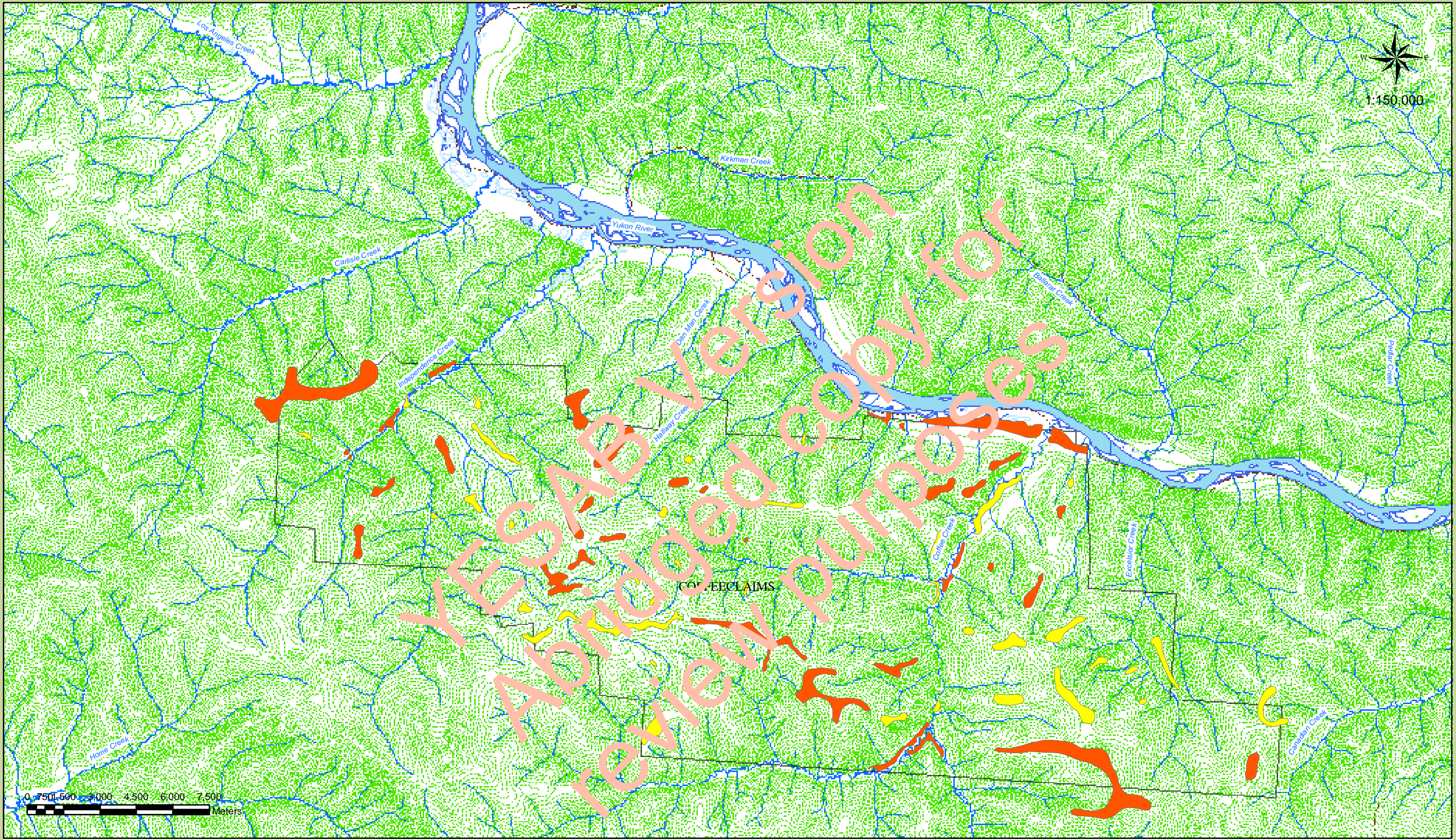
Subsurface testing was conducted at three locations during the PFR. The intent of testing was to determine the presence of subsurface heritage resources when none were visible on the surface. Subsurface tests were excavated by shovel and measured approximately 30 cm by 30 cm and were excavated to sterile sediment, generally weathered bedrock located no more than 30 cm below surface. Sediments were passed through ¼ inch steel mesh screen. Subsurface testing was deemed unnecessary in low potential areas and in areas of moderate potential where surface exposures were considered adequate and intensive surface inspections failed to produce any indication of past human activity.

5.0 RESULTS

5.1 HROA Results

The land base in the study area has been classified into zones of heritage potential. Heritage potential is rated as high, moderate, or low. It is important to note that the classification scheme is a predictive tool and low potential does not mean no potential as it is possible for heritage resources to be encountered anywhere in the study area. Zones of heritage potential are portrayed as polygons on the attached map (Map 2). GIS shapefiles are provided so that these HROA polygons can be overlaid onto development planning maps.

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	Coffee Claims		Wetland
	Main Road		River/Lake
	Secondary Road		Archaeological Site
	Stream		High Potential
	30m Contour		Moderate Potential
	Trail		

MAP 2: Kaminak Gold Coffee Project HROA Results

	MAPSHEETS:	LOCATION: Yukon River	PROONENT: Kaminak Gold Corporation
	NTS: 115 J13, J14, J15, 115 O2, O3, O4	UTM: E 587418 N 6970957 PROJECTION: NAD83 Zone 7	JOB #: M10-087-Coffee Gold

5.2 PFR Results

This section contains descriptions of the 5 heritage sites identified within the study area. Details are provided regarding their present condition. Maps of the sites are provided in Appendix B and photographs of all sites identified or revisited during this study are provided in Appendix D.

5.2.1 Heritage Resource Site Summaries

Five newly recorded heritage sites, three pre-contact and two post-contact, were identified within the study area during this project. The following is a summary of all of these sites.

KfVj-1 (Temporary Site Number M10-Kaminak-1)

KfVj-1 is a post-contact surface cultural material site situated on a flat terrace overlooking black spruce lowlands to the south that are associated with a lower terrace on the north side of a creek. Surface exposure is <5% on top of the terrace but 40-60% along the eroding terrace bank. The site consists of two historic glass bottles and a rusted milk can found within 5 m of the terrace edge. Six shovel tests were excavated in the area that failed to yield cultural material. A full site assessment was not conducted and the site dimensions are unknown. The surface find locations encompass an area of approximately 80 m northeast-southwest by 5 m northwest-southeast. The artifact types suggest a temporary or semi-permanent camp was located in the area. Flat and dry terrain extend north from the terrace edge for over 100 m but pedestrian survey was largely limited to the terrace edge for lack of time, therefore, historic features may exist further north. The area exhibits high heritage resource potential because of the dry, elevated, sandy terrain located close to a creek and river confluence. Disturbance to the site is limited to river and wind erosion along the sandy terrace edge during flood intervals. Artifacts were not collected. Site vegetation consists of fir, white spruce, birch, and aspen with rose, blueberry, pine grass, and moss.

KfVk-1 (Temporary Site Number M10-Kaminak-2)

KfVk-1 is situated on a prominent knoll in an alpine area with good views east and northeast down tributary valleys. The site consists of pre-contact cultural material found on flat ground on the knoll top adjacent to a bedrock outcrop. Several stone flakes and tools were identified in 11 surface find locations. Artifact types suggest general purpose activities at the site such as tool maintenance and use. The area offers good views of surrounding terrain and ridge tops and may have served as a game lookout. Stone flakes made of a local material recovered from the knoll indicate that the area may also have served as a quarry. With surface exposure at 90-95%, shovel tests were not necessary and a full site assessment was not completed. Site dimensions are not known but the artifacts were found to extend for approximately 15 m north-south and 8 m east-west. The site is surrounded by relatively steep terrain and is likely confined to the knoll top. Disturbance to the site is moderate as a result of wind erosion on the exposed knoll top. All artifacts were collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of white spruce, scrub birch, crowberry, reindeer lichen, grass, and moss.

KfVk-2 (Temporary Site Number M10-Kaminak-3)

KfVk-2 is situated on a bench feature in an alpine area with good views east and northeast down tributary valleys. The site is located adjacent to several high bedrock outcrops that offer 360° views of surrounding mountain slopes, valleys, and ridge tops. The site consists of pre-contact cultural material found in one surface find location on flat ground immediately south of a large bedrock outcrop. The artifact type suggests tool maintenance. Two shovel tests were excavated to determine if the site had a sub-surface component but no cultural material was identified. A full site assessment was not completed and the site dimensions are unknown. The site is surrounded by relatively steeply sloping terrain interspersed with flat benches that exhibit high heritage resource potential. Disturbance to the site is moderate as a result

of wind erosion on the exposed benches. Surface exposure is between 40-60%. The artifact was collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of white spruce, blueberry, bunchberry, crowberry, reindeer lichen, grass, and moss.

KfVvk-3 (Temporary Site Number M10-Kaminak-4)

KfVvk-3 is situated on a prominent knoll in an alpine area with good views east and northeast down tributary valleys. The site consists of pre-contact cultural material found in one surface find location on flat ground on a knoll top adjacent to a bedrock outcrop. The artifact type suggests general purpose activities at the site such as tool maintenance and use. The area offers good views of surrounding valleys and ridge tops and may have served as a game lookout. With surface exposure at 60-70%, shovel tests were not deemed necessary and a full site assessment was not completed. Site dimensions are not known but the site is surrounded by steep terrain and is likely confined to the knoll top. Disturbance to the site is moderate as a result of wind erosion on the exposed knoll top. The artifact was collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of white spruce, willow, scrub birch, and reindeer lichen.

KfVvk-4 (Temporary Site Number M10-Kaminak-5)

KfVvk-4 is situated on a gentle slope overlooking tributary valleys to the east and northeast. The site consists of a post-WWII Boeing SB-17G Flying Fortress plane wreck. Fuselage is spread across an area of approximately 75 m east-west and 20 m north-south. The B-17 crash site was recorded in 2003 and was revisited by Matrix Research Ltd. in 2010 in order to take GPS waypoints, photographs, and assess site disturbance. The plane, flying from Elmendorf AFB near Fairbanks, Alaska, crashed in 1952 during a recovery mission. Beirsto's 2003 report contains a detailed history of the plane that will not be repeated here. Beirsto noted that site disturbance was minimal and that no obvious scavenging of the wreck had occurred despite its historical significance and interest by aviation enthusiasts. He credited this to the site's remote location which has since seen a rise in exploration and drilling activity. In 2010, several artifacts mentioned by Beirsto could not be located and local informants stated that people had visited the wreck in recent years. For this reason, site disturbance has been elevated to high despite its stable position and minimal corrosion of fuselage.

6.0 HERITAGE RESOURCE MANAGEMENT RECOMMENDATIONS

This section provides recommendations resulting from this study, including a discussion of gaps in heritage data, a prediction of the type and number of sites expected, and a discussion of options for managing heritage sites identified during development planning.

6.1 Gaps in the Heritage Resources Record of the Study Area

Very few heritage studies have been undertaken in the region and no archaeological sites have been previously recorded in the study area. Consequently, regional site density and distribution is relatively unknown, as is the full extent, nature, and time period of human occupation of the region. Additionally, there is a minimal amount of First Nations traditional land use information recorded for the study area so it is difficult to correlate geographic locations within the study area to traditional activity areas in the aboriginal economy.

6.2 Heritage Resource Potential and Resource Values

A relatively small portion of the study area is considered to have notable heritage resources potential. Areas considered to have high to moderate pre-contact heritage resources potential are typically near hydrological resources on distinct, well-drained topographic features or are in upland areas on prominent landforms that provide good vantage points or strategic hunting positions. Generally, moderate and high potential areas are more frequent in the upland portions of the study area and along the lower portions of tributary valleys. This is because the upland areas provide easier travel and access to hunting locations whereas upper valleys are steeply sloped. From the archaeological record, it is inferred that larger, more permanent pre-contact sites will be positioned adjacent to the major hydrological features. Post-contact heritage resources potential is highest along gold-bearing creek beds. Major drainage valleys in the study area have not been subjected to extensive dredging operations and therefore there is a high likelihood that if early mining sites were located in the area, they are still preserved.

Based on results of the HROA, it was expected that most heritage sites in the proposed study area will consist of small, short-term camps related to hunting, trapping, or travel activities. Sites resulting from these activities are normally manifested as small lithic scatters; however, local environmental and geological conditions such as aridity and calcareous sediments may support the preservation of some organic materials. The remains of structures were not expected to be readily visible in this area given the short-term settlement occupation and previous forest fires, but there may be evidence of cultural depressions.

6.3 Heritage Resource Management Options

The HROA is intended to facilitate the management of heritage resources and provide planning options for future mine developments. For this study, areas of low heritage resources potential are characterized by significant distances from natural resources and/or have terrain characteristics that are not commonly associated with heritage sites. Developments proposed for these areas are not anticipated to have an impact on heritage resources, therefore, pre-construction heritage assessments are not recommended in low potential zones.

Conversely, those areas identified as having moderate or high heritage resources potential can be managed to avoid having an impact on heritage sites. The preferred management option for areas with moderate to high heritage resources potential is avoidance. Preliminary Field Reconnaissances (PFRs) and/or Heritage Resources Impact Assessments (HRIAs) are recommended in order to ground-truth heritage resources potential and negate or confirm the presence of heritage resources. In the event that heritage resources are discovered in the development area, mitigation options can be provided.

Several areas within the Kaminak Gold Coffee Claim area were assessed as having moderate to high heritage potential. A PFR was recommended in order to refine the HROA through ground-truth predictions of heritage potential and documentation of above- and below-ground heritage resources. The PFR conducted in 2010 resulted in the discovery of three pre-contact heritage sites (**KfVj-1, 2, and 3**) and two post-contact heritage sites (**KfVj-1** and **KfVj-4**). Management recommendations regarding the general study area as well as specific management recommendations regarding **KfVj-1 to 4** and **KfVj-1** are outlined below.

6.4 Recommendations

Areas identified as having moderate and high heritage resources potential are shown on Map 2. It is recommended that an HRIA be carried out prior to potentially land altering activities within all areas considered to have moderate or high heritage resources potential. Pre-development heritage resources investigations are not recommended for the remainder of the study area.

Three pre-contact heritage sites and two post-contact heritage sites were identified during 2010. Management recommendations in order of preference are as follows:

- 1) Avoidance. If the site areas and appropriate buffers (100 m) around the sites can be avoided by mining developments, then no further heritage assessments are recommended.
- 2) If the site areas cannot be avoided, then completion of HRIAs, and possibly systematic data recovery, is recommended prior to any potentially ground-altering development activities.

In the event that heritage resources are discovered in conflict with a proposed development area, mitigation options can be provided.

Heritage resources are protected from non-permitted alterations or disturbance by the *Historic Resources Act* (Government of Yukon 2002) and the *Archaeological Sites Regulations* (Government of Yukon 2003).

The HROA was designed solely for the management of heritage resources. It should not be considered to be applicable to traditional or contemporary land use by First Nations. It is recommended that concerns regarding traditional Aboriginal use in the Kaminak Gold Coffee Claim area are discussed with the Tr'ondëk Hwëch'in First Nation.

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APPENDIX A

Glossary of Archaeological Terms

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ABORIGINAL; INDIGENOUS: Pertaining to the original occupants of a given region.

A-HORIZON: the uppermost, often dark-coloured natural level in a soil profile characterized by roots, humus, and a lack of clay, iron, carbonates and soluble salts which have leached to lower levels.

ARCHAEOLOGY: The science concerned with the recovery, analysis, description, and explanation of the remains of past human cultures.

ARCHAEOLOGICAL SURVEY OR SITE INVENTORY: Examination of a locality for evidence of past human activity and the recording of that evidence to produce an inventory of sites in that locality.

ARTIFACT: Any manually portable product of human workmanship. In its broadest sense includes tools, weapons, ceremonial items, art objects, all industrial waste, and all floral and faunal remains modified by human activity. In the Yukon, an artifact is an object that is older than 45 years and has been abandoned.

BARK-STRIPPED TREE: A tree which has had bark removed by First Nations people for a number of possible purposes (e.g., fibre, food, medicine)

BASALT: A fine-grained volcanic rock used for the manufacture of chipped stone artifacts. Colour ranges from black to grey; texture granular to glass like.

B-HORIZON: That natural level within a soil profile which directly underlies the surficial A-horizon and which contains the clay, iron oxides and carbonates which have leached down from it.

BIFACE: A stone artifact flaked on both sides.

BORDEN NUMBER: A standardized number consisting of four letters and one number assigned to each archaeological site which identifies it and denotes its general location in Canada.

BORDEN SYSTEM: A code of 4 letters and a number used to designate archaeological sites in Canada (e.g., GtRx 7; FIJr 10). Proposed by Charles E. Borden, University of British Columbia, in 1954. The alphabetic prefix refers to a block of 10 minutes by 10 minutes within a grid system that covers all of Canada south of 62° N latitude. The numerical suffix indicates the site within this block in numerical order of registration.

CACHE: A deliberate store of equipment, food, furs or other resources placed in, or on the ground (perhaps protected by a rock CAIRN), or raised above the ground on a platform.

CACHEPIT: Small circular depressions (less than 3 m) that were used to store food.

CHALCEDONY: A semi-translucent silicate (quartz) rock with a wax-like luster and a great range of colours, used as raw material for the manufacture of chipped stone artifacts. Commonly called agate.

CHERT: A mainly opaque, fairly granular, silicate rock with a dull shiny luster and a great range of colours, used as raw material for the manufacture of chipped stone artifacts. Varieties include jasper and flint.

CONCHOIDAL FLAKE: A type of spall resulting from the fracture of fine-grained, or glassy rocks. Characterized by a bulb of percussion, striking platform remnant, and extremely sharp edges. A predictable fracture pattern that allows the manufacture of predetermined tools from these materials.

CONTACT: The time of first prolonged direct contact between First Nations peoples and Europeans. The term is synonymous with the Historic period which is characterized by contemporary written works.

CONTEXT: The spatial relationships of archaeological items and samples within a site. "Primary Context" refers to materials found in their original position; "Secondary Context" refers to materials which have been displaced and redeposited by disturbance factors; "Geological Context" is the relationship of the archaeological finds to geological strata.

CONCENTRATION: A notable accumulation of archaeological materials in a small area, such as a "concentration of flakes" etc.

CORE: (1) A blocky nucleus of stone from which flakes or blades have been removed (see MICROBLADE CORE). (2) A column or lineal sample of materials obtained by "coring" the ground, trees, etc.

CORTEX: The naturally weathered outer surface of a pebble.

CULTURE: The distinctive lifeway – including language, technology, sustenance, social organization, customs, beliefs and rituals – practiced by a people. This term can also be used to refer to the culture of particular groups of people at a particular point in time. In an archaeological context, the term culture refers to materials or objects of human origin, in contrast to natural.

CULTURAL DEPOSIT: Sediments and materials laid down by, or heavily modified by, human activity.

CULTURAL DEPRESSION: A pit excavated by people into natural sediments. Pits have been excavated for a variety of reasons including: houses (pithouses, house pit), food storage (cache, cache pit), food cooking (roasting pit, berry trenches, hearth) and burials.

CULTURALLY MODIFIED TREE (CMT): A tree that had been intentionally altered in some way. CMTs usually consists of bark-stripped trees, that is, trees that have had the bark to access the cambium for eating, for extracting tree sap, for manufacture, or for medicinal purposes, by First Nations people. Blazed trees may also be referred to as CMTs.

CULTURE SEQUENCE: The chronological succession of cultural traits, phases or traditions in a local area.

CULTURE TYPE: A chronologically limited cultural unit within a local culture sequence, characterized by sufficient descriptive traits to set it apart from all other units. A phase is generally represented by 2 or more components in several sites and is the basic classification of archaeological "cultures".

DACITE: Volcanic rock (or lava) that characteristically is light in color and contains 62% to 69% silica and moderate amounts of sodium and potassium.

DATUM: A fixed reference point on an archaeological site from which measurements are taken.

DEBITAGE: Waste by-products from tool manufacture.

DETRITUS: Waste by-products from tool manufacture. Most frequently applied to chips and fragments resulting from stone flaking.

DISTURBANCE: A cultural deposit is said to be disturbed when the original sequence of deposition has been altered or upset by post-depositional factors. Agents of disturbance include natural forces such as stream or wind erosion, plant or animal activity, land-slides etc.; and cultural forces such as later excavations.

ETHNOGRAPHIC ANALOGY: Interpretation of archaeological remains by comparison to historical cultures.

ETHNOGRAPHY: That aspect of cultural anthropology concerned with the descriptive documentation of living cultures.

ETHNO-HISTORY: The study of ethnographic cultures through historical records.

ETHNOLOGY: The aspect of cultural anthropology concerned with the comparative and processional analysis of ethnographic cultures.

FAUNAL REMAINS: Bones and other animal parts found in archaeological sites. Important in the reconstruction of past ecosystems and cultural subsistence patterns (see: MICROFAUNAL REMAINS).

FEATURE: A non-portable product of human workmanship. Usually clusters of associated objects; pit houses, structures, hearths, cache pits, mining activities, cooking ovens, etc.

FLAKE: A fragment removed from a core or nucleus of cryptocrystalline or fine-grained rock by percussion or pressure. May be used as a tool with no further deliberate modification, may be RETOUCHE, or may serve as a PREFORM for further reduction.

FLINT: A microcrystalline silicate rock similar to CHERT, used for the manufacture of flaked stone tools. Colour most commonly grey, honey-brown, or black.

GROUND STONE: Stone artifacts shaped by sawing, grinding, and/or polishing with abrasive materials (e.g., "ground slate knives", "polished soapstone pendants").

HEARTH: A fireplace, often circular and may be unlined, rock or clay-lined, or rock-filled. Minimally consists of fire-altered rock and charcoal.

HERITAGE RESOURCES IMPACT ASSESSMENT (HRIA): A study undertaken for a proposed development project to determine whether it will adversely affect historical, archaeological, or paleontological remains, generally indicated by the presence of shovel tests.

HERITAGE SITE: A location of archaeological or historical interest that contains evidence of past human activities. Heritage sites may consist of artifacts or features.

HISTORIC ARCHAEOLOGY: The archaeological investigation of POST-CONTACT sites.

HISTORIC PERIOD: The time after European contact or the beginning of written recording. In the Yukon, this period dates to the past 100 to 150 years.

HORIZON: Layers typical of the soil profile in a particular region.

HOUSE-PIT: An aboriginally excavated house floor. See PITHOUSE.

IN SITU: Archaeological items are said to be "*in situ*" when they are found in the location where they were last deposited.

LITHIC: Of/or pertaining to stone. A lithic artifact is one manufactured from stone.

LITHIC INDUSTRY: That part of an archaeological artifact assemblage manufactured of stone.

LITHIC SCATTER: An archaeological site consisting of two or more stone artifacts.

LITHIC TECHNOLOGY: The process of manufacturing tools etc., from stone. Most frequently refers to stone flaking.

LOCALITY: A very large site or site-area composed of 2 or more concentrations or clusterings of cultural remains.

MATRIX: An inclusive term for the natural and cultural sediments of an archaeological site.

MICROFAUNAL REMAINS: Very small animal remains, such as rodent bones, tiny bone fragments, insects, small molluscs, etc., discovered in an archaeological site.

MIDDEN: A deposit of camp refuse associated with human occupational sites. Most frequently refers to coastal SHELL-MIDDENS.

MUNSELL COLOUR CODE: A system of describing colours by a code of letters and numbers defining "hue", "value" and "chroma". Important in accurately describing the colours of archaeological soils and sediments.

OBSIDIAN: Natural volcanic glass. Colour ranges from nearly translucent through black, red and green. The most easily flaked raw material for the manufacture of flaked stone tools.

PALEOSOL: "Old Soil." Buried soil horizons indicative of past soil conditions different from that presently prevailing.

PETROGLYPH: Pictures, symbols, or other artwork pecked, carved or incised on natural rock surfaces.

PICTOGRAPH: Aboriginally painted designs on natural rock surfaces. Red ochre is the most frequently used pigment and natural or abstract designs may be represented.

PITHOUSE: A semi-subterranean "earth-lodge" winter dwelling. Usually consisted of an earth-covered log framework roof over a circular to rectangular excavation. The archaeological feature is called a housepit.

POST-CONTACT PERIOD (Also "Historic Period"): Refers to the period following the first arrival of Europeans.

POT-HUNTER: An "amateur archaeologist" who vandalizes and destroys sites to add to his private collection, or for monetary gain.

PRE-CONTACT: Refers to the period before the first arrival of Europeans in a given area.

PREHISTORIC: The period prior to written records for any given area. In North America synonymous with PRE-CONTACT.

PRELIMINARY FIELD RECONNAISSANCE (PFR): A study undertaken for a proposed development project to determine whether it will adversely affect heritage remains, generally indicated by the lack of need for shovel tests.

PROJECTILE POINT: An inclusive term for arrow, spear or dart-points. Characterized by a symmetrical point, a relatively thin cross-section and some element to allow attachment to the projectile shaft. Flaked stone projectile points are usually classified by their outline form: triangular, leaf-shaped, lanceolate, stemmed, corner-notched, and side-notched.

PROVENIENCE: The horizontal and/or vertical position of an object in relation to a set of spatial coordinates.

QUARTZ CRYSTAL: Pure silicate rock-crystal. Usually perfectly clear with six crystal surfaces. May be used as a raw material for lithic tool manufacture.

RETOUCH: The removal of small secondary flakes along the edge of a lithic artifact to improve or alter the cutting properties of that edge. Retouch flaking may be BIFACIAL or UNIFACIAL.

RETOUCHED FLAKE: A stone flake which has had one or more edges modified by the deliberate removal of secondary chips.

ROCK-SHELTER: A shallow cave or rock overhang large enough to have allowed human occupancy at some time.

SCRAPER: A tool presumably used in scraping, scouring, or planing functions. Most frequently refers to flaked stone artifacts with one or more steep UNIFACIALLY RETOUCED edge(s).

SETTLEMENT PATTERN: The spatial distribution of cultural activities across a landscape at a given moment in time.

SHOVEL-SCREENING: A rapid excavation procedure in which the site matrix is shoveled directly through a screen (usually 1/4" mesh).

SHOVEL TEST: a small scale, generally informal test excavation to ascertain the nature of the deposits, to determine the presence or absence of a heritage site, or to delimit the boundaries of a known site.

SITE: Any location with detectable evidence of past human activity. Includes HISTORICAL SITES, HABITATION SITES, KILL-SITES, QUARRY SITES, ROCK-ART SITES, BURIAL SITES, etc. See HERITAGE SITE.

SITE SURVEY: The process of searching for and describing heritage sites in a given area.

SOIL-SAMPLE: A quantity of soil, site matrix, or sediments collected for physical, or chemical analysis.

STORAGE-PIT (Also called CACHE-PITS): Circular excavations usually less than 3 m in diameter assumed to have aboriginally functioned as storage "cellars".

STRATA: Depositional units or layers of sediment distinguished by composition or appearance. (Singular: "stratum").

STRATIGRAPHY: The study of various deposits, built up over time, which form delineated layers (such as ash, charcoal or crushed shell) in the earth walls of a pit.

SURVEY(ING): (1) In Archaeology, the process of locating archaeological sites. (2) More generally, the process of mapping and measuring points on the ground surface.

SURVEY AREA: The region within which heritage sites are to be located.

TOOL: An artifact that has been intentionally modified or formed for a specific purpose (e.g., projectile point, knife, scraper).

TYPE: A distinctive formal artifact class restricted in space and time, e.g., the "Folsom Point" is a projectile point "type".

TYPOLGY: The classification of artifacts according to analytical criteria, to determine and define significant trends or variations in time and space.

UNIFACE: A stone artifact flaked only on one surface.

USE-WEAR: Polish, striations, breakage, or minor flaking which develop on a tool's edge during use. Microscopic examination and study of the wear may indicate the past function of tools.

WETLAND: Areas of land that are inundated by surface water or ground water sufficient to support the growth and reproduction of vegetative and aquatic life.

WORKED: Having chips, flakes, scratches or other evidence of deliberate modification on stone, bone, antler, shell, etc.

ZOOARCHAEOLOGY: The study of faunal remains found in archaeological sites and their cultural significance.

Modified from:

A Glossary of Terms: Artifacts BC.

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APPENDIX B

Heritage Site Maps

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APPENDIX C

Pre-contact Artifact Photographs

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Project Photographs

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ADD9 B8 ± E

Modified Artifact and Debitage Catalogue

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APPENDIX 26-A-2

Heritage Resources Impact Assessment of the Kaminak Gold Coffee Project Conducted Under Permit 11-03ASR



Archaeological and Heritage Consulting

**Heritage Resources Impact Assessment of the Kaminak Gold
Coffee Project Conducted Under Permit 11-03ASR.**

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Prepared by: Matrix Research Ltd.

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July, 2012

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The opinions, recommendations, omissions, and / or errors in this report are those of Matrix Research Ltd. alone and do not necessarily reflect the positions held by Kaminak Gold Corporation, Tr'ondëk Hwëch'in First Nation, or the Government of Yukon.

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MANAGEMENT SUMMARY

This report details the results of a Heritage Resources Impact Assessment (HRIA) in selected portions of the Kaminak Gold Coffee Claim area (Map 1). The HRIA was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process. The general objectives of this heritage study were to document above- and below-ground heritage resources during the HRIA of the Kaminak Gold Coffee Claim area, assess degrees of potential impact on heritage resources, and offer management recommendations.

As a result of a Heritage Resources Overview Assessment (HROA) in 2010, the entire study area was classified into zones of heritage resources potential, either high, moderate, or low. The classification scheme was refined in-field during helicopter aerial overviews of the study areas prior to ground-truthing in 2010 and 2011. Further heritage resources investigations were recommended for moderate and high heritage resources potential areas prior to any potentially ground-altering development activities. HRIA fieldwork was conducted from June 13th to 23rd, 2011, on selected portions of the claim area in which developments were proposed that lied within the refined areas of moderate and high heritage resources potential. Fieldwork included visual inspection on foot for above-ground heritage resources and, if deemed necessary, shovel testing to identify below-ground heritage resources. Three pre-contact heritage sites (Table 1) were identified during the HRIA (**Kfvj-2**, **Kfvj-3**, **KeVj-1**). **Kfvk-5** is a pre-contact lithic site discovered in July by Kaminak subcontractors (GroundTruth Explorations) during sediment sampling and it is also reported here (Table 1).

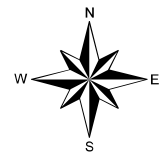
Full site assessments were conducted on **Kfvj-2**, **Kfvj-3**, and **KeVj-1** to determine spatial extent. Proposed developments in the vicinity of heritage sites discovered in 2010 (**Kfvk-1**, **Kfvk-2**, **Kfvk-3**) also warranted full site assessments that were conducted in 2011. Provided that **Kfvj-2**, **Kfvj-3**, **KeVj-1**, **Kfvk-5**, **Kfvk-1**, **Kfvk-2**, and **Kfvk-3** can be avoided with a minimum buffer of 30 m and that the boundaries or proposed development areas are not significantly altered, there are no further management recommendations for the heritage resources and proposed development areas inspected in 2011.

Heritage resources are protected from non-permitted alterations or disturbance by the *Historic Resources Act* (Government of Yukon 2002) and the *Archaeological Sites Regulations* (Government of Yukon 2003). To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon and Tr'ondëk Hwëch'in First Nation must be contacted as soon as possible with information on the heritage remains and nature of disturbance. Information on the identification of heritage resources

can be found in a publication entitled *Handbook for the Identification of Heritage Sites and Features* (Gotthardt and Thomas 2005).

This study was designed as a heritage resources impact assessment and was not intended to evaluate or comment on traditional Aboriginal use of the areas in which developments are proposed. The results of this study, therefore, should not be considered valid for that purpose.

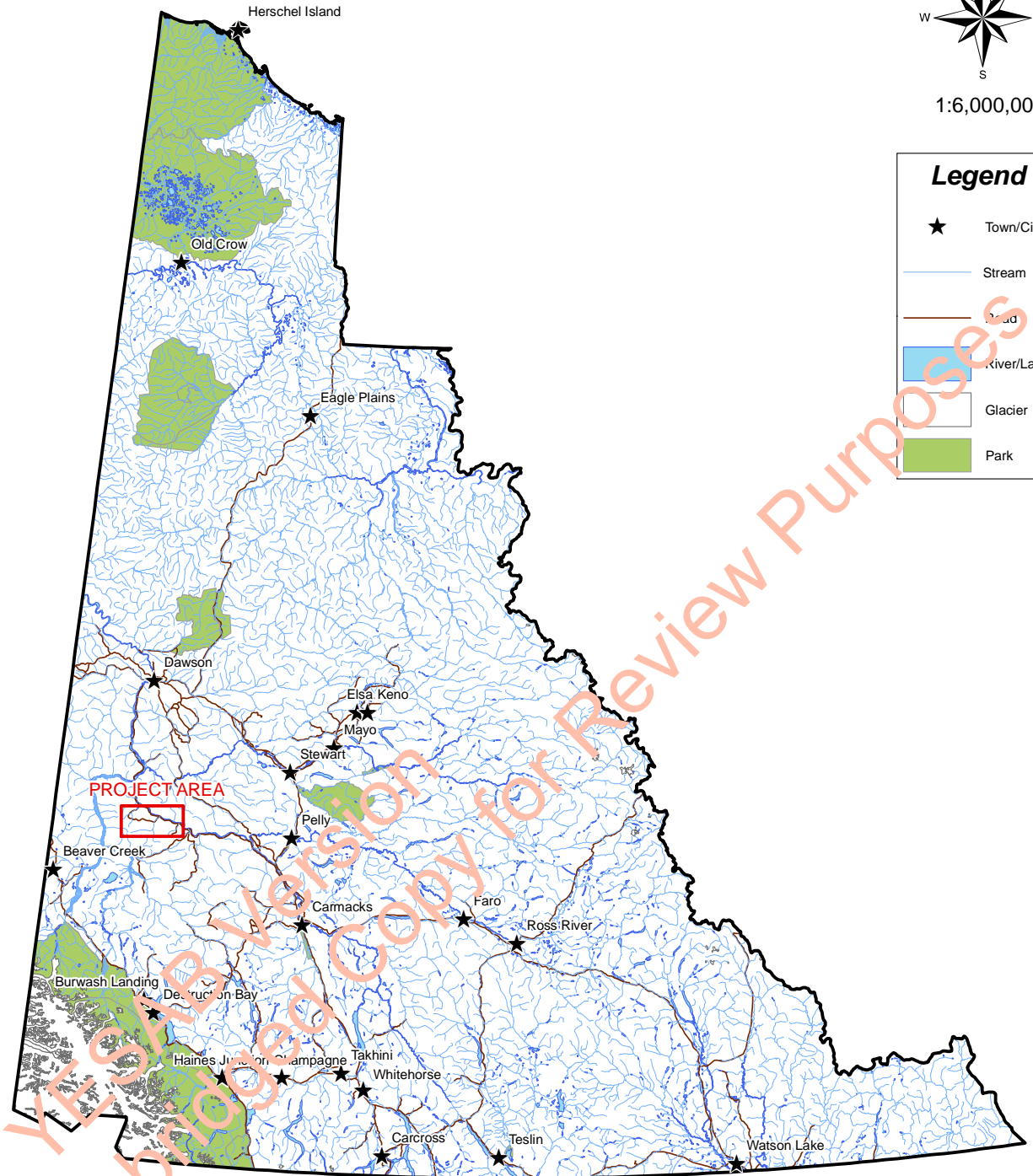
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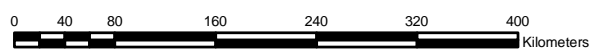
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Legend

- ★ Town/City
- Stream
- Road
- River/Lake
- Glacier
- Park



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MAP 1: Project Area

Table 1: Heritage Sites Recorded Under Permit 11-03ASR.

Temporary Site Number	Site Classification	Site Type	NTS Mapsheet
Borden Number			
M11-Kaminak-1	Prehistoric	Cultural material, subsurface, lithics	115 J/14
KfVj-2			
M11-Kaminak-2	Prehistoric	Cultural material, subsurface, lithics	115 J/14
KfVj-3			
M11-Kaminak-3	Prehistoric	Cultural material, surface, lithics	115 J/14
KeVj-1			
M11-Kaminak-4	Prehistoric	Cultural material, subsurface, lithics	115 J/14
KfVk-5			

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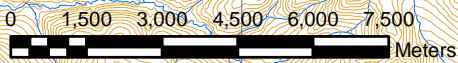
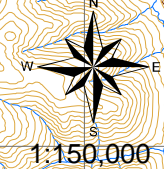
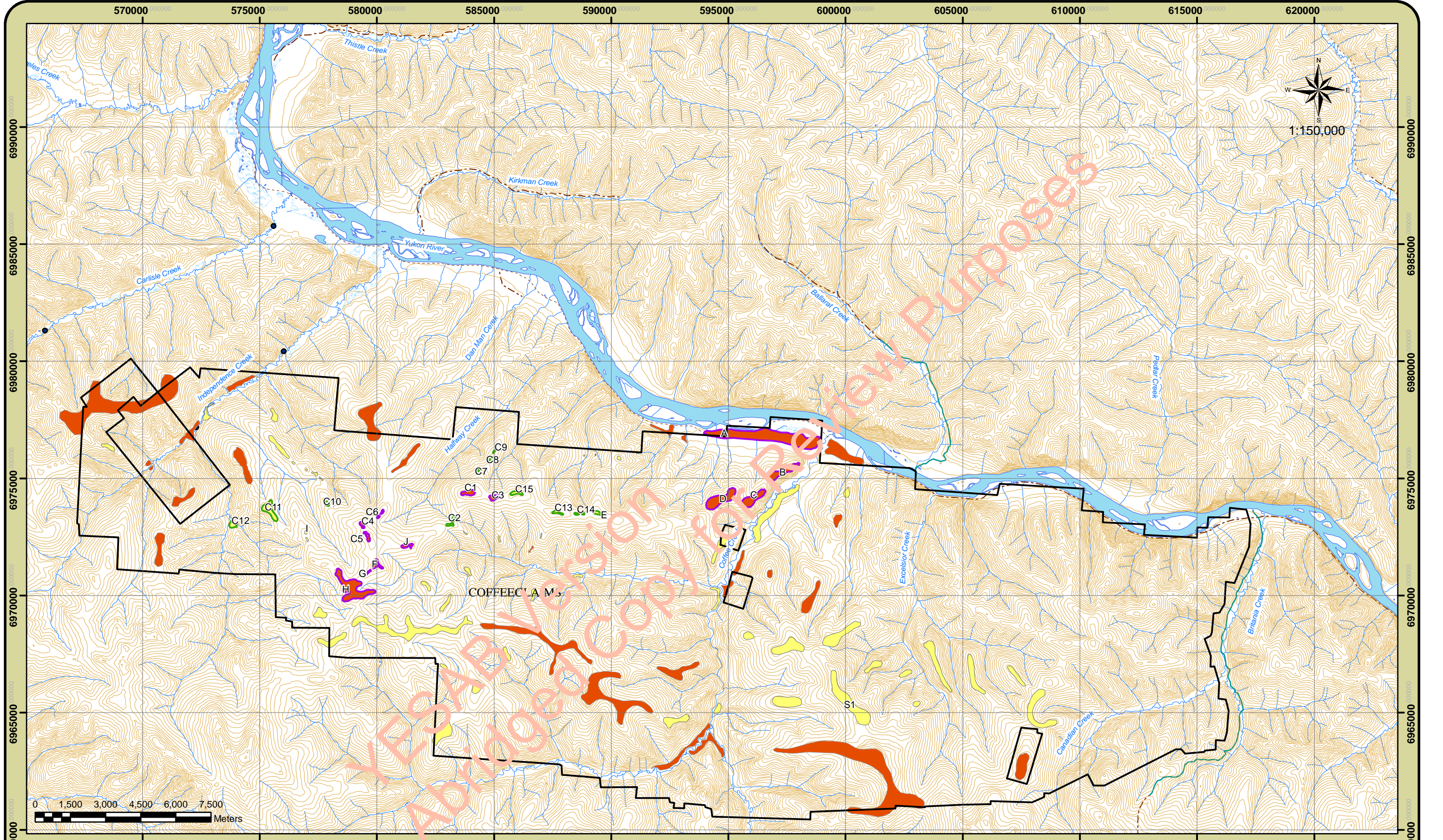
1.0 INTRODUCTION

This report details the results of a Heritage Resources Impact Assessment (HRIA) of selected portions of the Kaminak Gold Coffee Claim area. This study was conducted at the request of Kaminak Gold Corporation.

The Kaminak Gold Coffee property is located approximately 480 km north of Whitehorse and 120 km southwest of Dawson City in west central Yukon (Map 1). The Coffee project involves mineral exploration claims and associated facilities located 0.2 to 15 km south of Yukon River and encompasses drainages of Coffee, Halfway, and Independence Creeks. Drilling, trenching and soil sampling programs were conducted in 2010 and current facilities include helicopter platforms, drill pads, tent camps, and an existing airstrip and base camp operating out of an outfitting lodge along the Yukon River. Exploration activity is currently supported by helicopter as there is no road access. Proposed developments include mineral exploration (diamond drilling and trenching) and associated civil engineering (road, camp, and airstrip construction) within selected portions of the Kaminak Gold Coffee Claim area. Within these selected portions, a total of 27 priority zones were identified for HRIA fieldwork in 2011 (Map 2). These zones encompass proposed development areas that occur within high or moderate heritage resources potential zones as determined in a previous Heritage Resources Overview Assessment (HROA) and Preliminary Field Reconnaissance (PFR) in 2010. Developments within or adjacent to high and moderate heritage resources potential zones include drilling and machine access, as well as surface preparation during the proposed building of roads, airstrips, and camps.

The HRIA was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process (YESAB Project Number 2010-0087). The objectives of this heritage study were as follows: 1) documentation of above- and below-ground heritage resources during the HRIA of portions of the Kaminak Gold Coffee Claim area, 2) refinement of the heritage resources potential areas prescribed during an HROA in 2010, and 3) provision of management recommendations regarding heritage resources identified during the HRIA in 2011 as well as heritage resources identified in 2010 that are in the vicinity of proposed developments.

Fieldwork was conducted by Todd Kristensen and James Guy of Matrix Research Ltd. from June 13th to 22nd, 2011 with the assistance of Lee Whalen and Madeline deRepentigny of Tr'ondëk Hwëch'in First Nation on June 14th to 16th.



High Potential	Coffee Claims Study Area	River/Lake
Moderate Potential	Main Road	Wetland
High Priority	High Priority	River/Stream
Moderate Priority	Moderate Priority	30m Contour
		Trail

MAP 2: Coffee Claim Priority Areas

	MAPSHEETS:	LOCATION: Yukon River	PROPOSER: Kaminak Gold Corporation
	NTS: 115 J13, J14, J15, 115 O/2, O/3, O/4	UTM: E 587418 N 6970957 PROJECTION: NAD83 Zone 7	JOB #: Y11-010-CG

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1.1 Report Format and Distribution

This report is divided into seven sections and five appendices.

Section 1: Introduction

This section introduces the heritage assessment study and discusses the work undertaken, duration of the study, relevant legislative references and definitions, and a summary of correspondences made with First Nations.

Section 2: Heritage Assessment Description

This section discusses the intent of the heritage assessment in relation to the proposed development.

Section 3: Study Area

This section describes the geographic location and natural setting of the study area. A brief overview of cultural history and previous archaeology within the vicinity of the development area is also presented.

Section 4: Methodology

This section discusses the methods used while conducting the heritage assessment.

Section 5: Results

This section describes the results of the 2011 HRIA fieldwork in the proposed development area. A map is provided that shows refined heritage potential zones, survey transects, shovel tests, and heritage sites. Three heritage sites were recorded during the HRIA and an additional site was discovered by Kaminak subcontractors in July. Descriptions of each site are provided. Maps of each site are provided in Appendix B.

Section 6: Recommendations

This section provides recommendations for the management of heritage resources and heritage potential identified during the HRIA.

Section 7: References Cited

This section lists bibliographic information for all references cited in the text.

Appendices

Included with this report are five appendices containing a glossary of archaeological terms, heritage site maps, pre-contact artifact photographs, heritage assessment photographs, and catalogues for pre-contact lithic artifacts.

1.2 Legislative References

The *Historic Resources Act* (Government of Yukon 2002) and *Archaeological Sites Regulations* (Government of Yukon 2003) contain legislation that ensures the management and protection of Yukon archaeological and historical resources. This legislation applies to archaeological and historical sites older than 45 years whether they are located on public or private land. The permit for this Heritage Resources Impact Assessment (11-03ASR) was issued and administered by the Manager of Heritage Resources Unit, Cultural Services Branch, Department of Tourism and Culture. To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon, and Tr'ondëk Hwëch'in First Nation must be contacted as soon as possible with information on the heritage remains and nature of disturbance. Information on the identification of heritage resources can be found in a publication entitled *Handbook for the Identification of Heritage Sites and Features* (Gotthardt and Thomas 2005).

1.3 First Nations Referral and Correspondence

The area assessed during this study is located within the traditional territory of Tr'ondëk Hwëch'in First Nation (THFN). Information on the proposed development was referred to THFN as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) review process of proposed developments. Matrix Research Ltd. contacted THFN to initiate discussion of a heritage resources impact assessment and to obtain any existing traditional land use information or oral history pertinent to the study area. Tr'ondëk Hwëch'in First Nation was also provided a copy of the Yukon Archaeological Sites Regulations permit application for review prior to the heritage assessment. Representatives from the First Nation were requested to assist with fieldwork; Lee Whalen and Madeline deRepentigny of Tr'ondëk Hwëch'in First Nation (THFN) participated in fieldwork from June 14th to 16th.

2.0 HERITAGE ASSESSMENT DESCRIPTION

The aim of a Heritage Resources Impact Assessment (HRIA) is to identify above- and below-ground heritage resources (such as archaeological or historic sites) and to make recommendations concerning the future management of those resources. The specific objectives of a Heritage Resources Impact Assessment (HRIA) are to:

- 1) Identify and evaluate heritage resources within the study area;
- 2) Identify and assess all impacts to heritage resources which might result from the proposed development; and
- 3) Recommend viable alternatives for managing unavoidable adverse impacts including a preliminary program to:
 - i. Implement and schedule impact management actions, and where necessary,
 - ii. Conduct surveillance and / or monitoring.

An additional objective was to further refine zones of heritage potential as outlined and ground-truthed in a 2010 Heritage Resources Overview Assessment (HROA) and Preliminary Field Reconnaissance (PFR) of the Kaminak Coffee Gold area (Kristensen and Heffner 2010).

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3.0 STUDY AREA

3.1 Natural Setting

The proposed development is located within the Klondike Plateau Ecoregion of the Yukon (Smith *et al.* 2004) approximately 120 km southwest of Dawson City. This ecoregion is characterized by smooth-topped ridges and deep, narrow v-shaped valleys that are characteristic of unglaciated areas. Elevation ranges from 300 – 2000 m above sea level (asl) with most uplands being 1200 – 1700 m asl. Forest cover is comprised mainly of black and white spruce with mixed stands containing balsam polar, birch, and aspen up to elevations of 1200 m asl. At higher elevations alpine tundra plant communities are present. Temperatures in the ecoregion range from -60°C to +35°C, with valley bottoms experiencing more extreme ranges in temperature than uplands. Annual average precipitation is 300 – 500 mm. Sediments in the major river valleys consist of alluvium and glacial outwash, whereas tributary valleys consist of thick colluviums and uplands consist of thin blankets of weathered bedrock. A thin layer of loess is present at most sites. Permafrost is widespread but discontinuous and absent from well-drained slopes.

3.2 Cultural Setting

The study area is wholly within traditional territory of the Tr'ondëk Hwëch'in First Nation (THFN). The THFN are Hän speakers belonging to the Athapaskan language family. Territory of the THFN extends from Peel River in the north to White River in the south and from Rae Creek in the east into Alaska to the west. The following brief review of Hän ethnography is taken largely from Osgood (1971), Dobrowolsky (2003), and Mishler and Simeone (2004). Emphasis has been placed on material culture, the seasonal round, and subsistence strategies as they relate to activities that are most likely to have left physical evidence of past human use.

The traditional seasonal subsistence round involved late spring / summer aggregation of groups of 20 to 50 individuals at selected fishing camps along the Yukon River chosen for the availability of migrating salmon. Yukon River salmon runs in Tr'ondëk Hwëch'in traditional territory include chinook or spring (king) salmon in late June / July followed by chum salmon in August / September (Osgood 1971). Settlement near these locations typically involved several families who used the same fishing location each year. Large quantities of salmon were caught with hooks, spears, dip nets, and stone and wooden fish weirs before being dried, smoked, and stored in preparation for the coming winter. Berry gathering and drying were also carried out in summer and into the fall. Important berries included cranberry, gooseberry, blueberry, and raspberry while Labrador tea, *Hedysarum* root, wild celery, and wild onions were also harvested (Dobrowolsky and Hammer 2001, Mishler and Simeone 2004).

The fall saw a dispersal of the group as food stores required additions or replenishment. The Tr'ondëk Hwëch'in moved into the highlands along tributaries of the Yukon River to hunt caribou, moose, and Dall sheep in late summer and fall (Osgood 1971). These animals were hunted for hides and food

that was cached for the winter. Caribou were traditionally hunted with bow and arrow, snares, and wooden/stone fences with corral structures that can still be seen today in alpine landscapes. Moose and sheep were hunted with snares, deadfalls, or bow and arrow. Big game were also hunted from canoe with spears as the animals were crossing lakes or rivers. For example, the Fortymile caribou herd regularly crossed the Yukon River near its confluence with Fortymile River, which represented an important fall hunting event for Hän people (Hammer and Thomas 2006).

In late fall, some Tr'ondëk Hwëch'in moved back to semi-permanent fishing camps located along the Yukon River including the Tr'ochëk site near Dawson City. Small families would winter together and subsist on cached salmon, berries, and game meat from the summer and fall. Family groups dispersed away from major rivers in late winter and pursued lone game such as moose and porcupine in order to supplement food stores until spring.

During the spring, small game and fresh water fish such as grayling, whitefish, pike, burbot, and sucker were sought, usually at nearby lakes and streams and in the surrounding forests (Mishler and Simeone 2004). These fish were traditionally caught with dip nets, sinew lines and bone hooks, and basket traps made of spruce wood and roots. Returning waterfowl, beaver and muskrat were among the small game animals taken. Late spring was the time when the Tr'ondëk Hwëch'in moved back to the Yukon River and prepared their canoes, fish weirs, and nets in anticipation of the returning salmon runs (Dobrowolsky 2003).

Traditional Hän dwellings consisted of relatively large winter moss houses excavated 30-40 cm into the ground with pole frames (Mishler and Simeone 2004). Domed winter tents were also constructed of animal hide draped over willow or spruce poles that were then lined with brush and snow. Typical summer dwellings included moose hide brush tents and more temporary lean-tos. The most archaeologically visible remnants of these structures are the central stone hearths located within the dwellings, post holes, and any depressions resulting from initial excavation. Other structures associated with camps include food caches, fish drying racks, and frames for skin tanning and smoking. Stones heated in fires were used to boil water for cooking meat and are occasionally visible in archaeological sites as clusters of heat cracked cobbles.

A wide variety of implements were used for hunting, fishing, and plant food gathering. Stone tools included projectile points (for arrows and spears), knives for cutting fish and mammal meat, scrapers (for preparing hides), and axes for woodworking and breaking bone. Flaking debris associated with stone tool manufacture and repair are the most commonly recovered artifacts in archaeological contexts. Several hunting / fishing implements were made from antler, bone and wood, and are sometimes recovered at archaeological sites with good preservation conditions. Examples of organic Hän tools include sinew and hide snares, antler adzes for woodworking, wooden fish spears tipped with bone, wooden funnel traps for fish, bone awls, and beaver tooth drills. Additional activities that may have left a material record in the study area include stone hunting blinds, piles of discarded animal bone, roasting pits, and trails (which have been documented to extend from Coffee Creek to Donjek River).

3.3 Previous Heritage Work

Prior to 2010, no previous heritage studies had been undertaken in the project area and no archaeological sites had been identified in the vicinity. A Preliminary Field Reconnaissance conducted in the Kaminak Coffee Property in 2010 (Permit 10-23ASR) resulted in the discovery of five new archaeological sites (Table 2). **KfVj-1**, **KfVj-2**, and **KfVj-3** are pre-contact sites consisting of lithic tools and/or debris, **KfVj-4** is an historic site, and **KfVj-1** is a post-contact debris site consisting of historic artifacts (glass bottles and tin cans).

Table 2: Heritage Sites Recorded Under Permit 10-23ASR.

Temporary Site Number	Site Classification	Site Type	N.T.S. Mapsheet
Borden Number			
M10-Kaminak-1	Post-Contact	Cultural material, surface, historic debris	115 J/14
KfVj-1			
M10-Kaminak-2	Prehistoric	Cultural material, surface, lithics	115 J/14
KfVj-1			
M10-Kaminak-3	Prehistoric	Cultural material, surface, lithics	115 J/14
KfVj-2			
M10-Kaminak-4	Prehistoric	Cultural material, surface, lithics	115 J/14
KfVj-3			
M10-Kaminak-5	Historic	Cultural material, surface, transportation	115 J/14
KfVj-4			

In addition to previously recorded archaeology sites, the area near the confluence of Coffee Creek and Yukon River was traditionally used as a salmon fishing camp based on oral history. An historic trail also runs through the immediate area on the south side of Yukon River. The general area was also the site of a homestead and burial of Henry Benjamin Detraz ('Cy Detro') who was born in Indiana in approximately 1869 and died in the Yukon in 1946. Mr. Detraz mined along Kirkman Creek from 1914-1922 and had a homestead at Coffee Creek from 1911-1942 (Yukon Archives 2003). The lot on which the cabin was built was surveyed by H. G. Dickson in 1927. Parks Canada commissioned an inventory of heritage structures along Yukon River and recorded a log cabin at Coffee Creek (Friesen 1978) and a photograph from 1922 may depict the same cabin.

The next nearest heritage resources include 20 archaeological sites associated with uplands and valleys in the watersheds of Donahue and Thistle Creek and their tributaries, located approximately 20 km to the north-northeast. Eighteen of these sites were recorded by Matrix Research Ltd. in 2009 and 2010 and include pre-contact stone artifacts and post-contact mining equipment and structures (Heffner 2010, Kristensen and Heffner 2011).

4.0 METHODOLOGY

The following section describes the methods used for the Heritage Resources Impact Assessment (HRIA). During an initial HROA, background information (from ethnographies, local history, and archaeological reports) was combined with aerial and previous ground observations to produce a preliminary assessment of heritage resources potential in the study area. These zones of heritage potential were refined in 2010 during a Preliminary Field Reconnaissance. Zones of elevated heritage resources potential were identified in 27 proposed development areas in 2011, which warranted field inspection. Results of the subsequent HRIA of the 27 proposed development areas in the Kaminak and Coffee Claims are presented in Section 5.0.

4.1 HRIA Field Procedures

Pedestrian survey transects were judgmental and targeted noteworthy topographic features (e.g., ridges, knolls, and remnant terrace features) and notable exposures (e.g., tree throws, cut banks, wind exposures, and areas with limited soil development). Handheld GPS units were used to record pedestrian transects that are indicated on Map 3.

Visual inspection during the HRIA resulted in the identification of 21 specific high or moderate potential areas that warranted subsurface testing. Two additional high or moderate zones were identified that did not warrant subsurface testing on account of sufficient surface exposure. These are identified as High Potential Zones (HPZs) 1 to 18 and Moderate Potential Zones (MPZs) 1 to 4 on Map 3. The intent of the testing was to determine the presence of subsurface heritage resources when none were visible on the surface. Subsurface tests were excavated by shovel and measured approximately 30 cm square and were excavated to sterile sediment, generally uniform sand, located no more than 40 cm below surface. Sediments were passed through ¼ inch steel mesh screen. Subsurface testing was deemed unnecessary in low potential areas or in areas of moderate or high potential where surface or subsurface exposures were considered adequate and intensive examinations failed to produce any indication of past human activity.

5.0 RESULTS

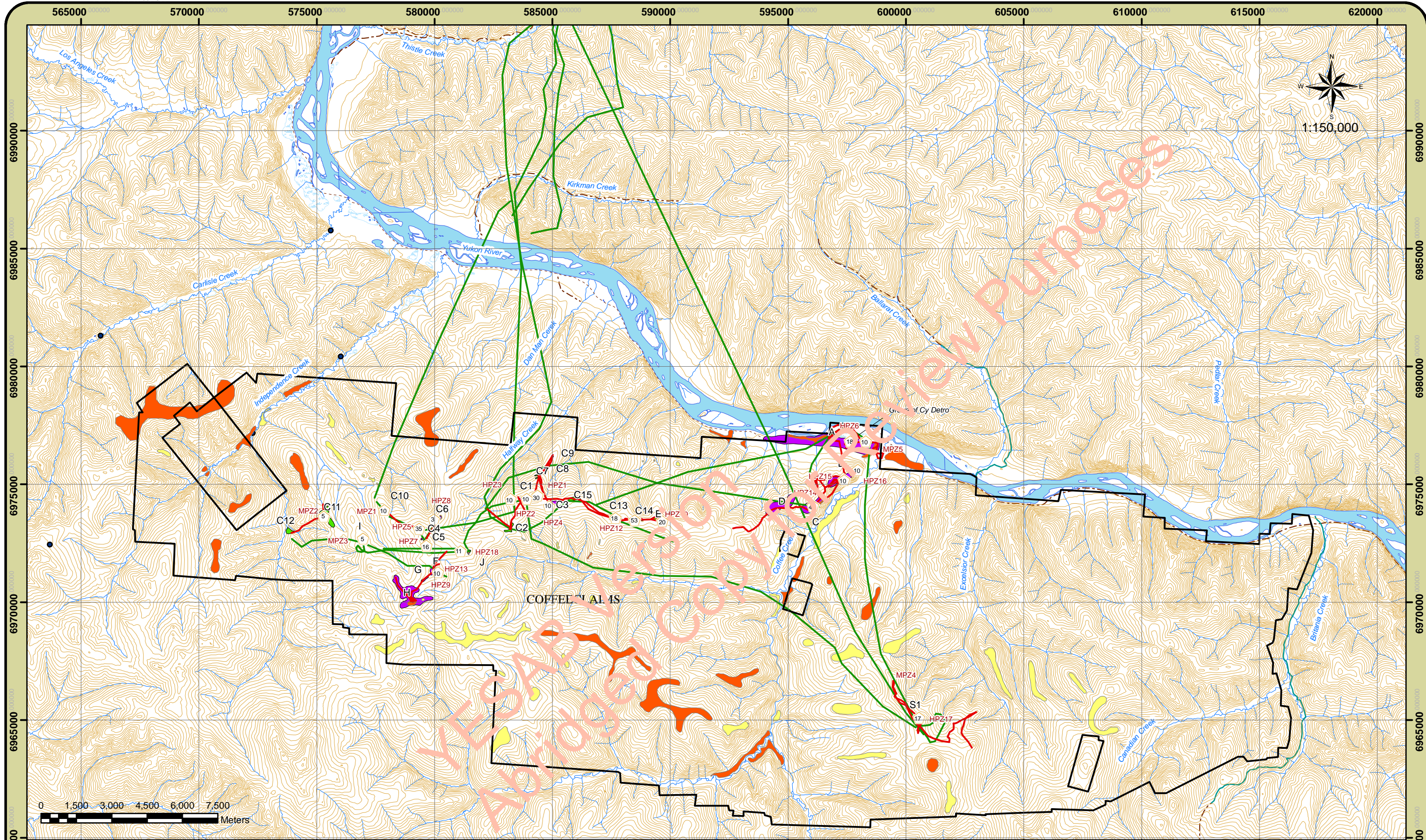
5.1 HRIA Results

This section provides a summary of general results of the surface inspection and subsurface sampling (Map 3). The section also contains descriptions of the heritage sites identified within the study area. Details are provided regarding their extent and present condition. Maps of the sites are provided in Appendix B and photographs of sites identified or revisited are included in Appendix D. Three pre-contact archaeological sites (**KfVj-2**, **KfVj-3**, **KeVj-1**) were identified during 2011 HRIA fieldwork (Table 3) and an additional pre-contact site (**KfVk-5**) was discovered during sediment sampling by Kaminak subcontractors. In addition, full site assessments were conducted on three heritage sites discovered in 2010 (**KfVk-1**, **KfVk-2**, **KfVk-3**) in order to determine full spatial extent and inform management recommendations regarding proposed developments in the general area. No other heritage resources were identified in the remainder of the areas assessed in 2011.

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Table 3: HRIA Results and Heritage Sites Recorded Under Permit 11-03ASR.

Priority Zone	Potential Zones	Number of Shovel tests	Testing Strategy	Results
C01	High Potential Zone 1	30	Systematic (10 and 20 m intervals) and judgmental	
	High Potential Zone 2	12	Judgmental	
	High Potential Zone 3	10	Judgmental	
C02	Low Potential Zone	N/A	N/A	
C03	High Potential Zone 4	10	Judgmental	
C04	High Potential Zone 5	35	Judgmental	
C05	High Potential Zone 7	16	Systematic (5 m intervals) and judgmental	
C06	High Potential Zone 8	3	Judgmental	
C07	Low Potential Zone	N/A	N/A	
C08	Low Potential Zone	N/A	N/A	
C09	Low Potential Zone	N/A	N/A	
C10	Moderate Potential Zone 1	10	Judgmental	
C11	Moderate Potential Zone 2	5	Judgmental	
C12	Low Potential Zone	N/A	N/A	
C13	High Potential Zone 12	18	Systematic (5 and 10 m intervals)	
C14	High Potential Zone 11	53	Systematic (5 m intervals) and judgmental	
C15	Low Potential Zone	N/A	N/A	
A	High Potential Zone 6	18	Systematic (5 m intervals)	
	Moderate Potential Zone 5	10	Systematic (10 m intervals)	
B	High Potential Zone 15	10	Judgmental	
	High Potential Zone 16	10	Judgmental	
C	High Potential Zone 14	40	Systematic (5 m intervals) and judgmental	
D	Low Potential Zone	N/A	N/A	
E	High Potential Zone 10	20	Judgmental	
F	High Potential Zone 13	10	Systematic (10 m intervals)	
G	High Potential Zone 9	0	N/A (testing not necessary due to extensive surface exposure)	
H	Low Potential Zone	N/A	N/A	
I	Moderate Potential Zone 3	5	Judgmental	
J	High Potential Zone 18	11	Judgmental	
S01	High Potential Zone 17	17	Systematic (5 m intervals) and judgmental	
	Moderate Potential Zone 4	0	N/A (testing not necessary due to extensive surface exposure)	
S02	Low Potential Zone	N/A	N/A	



■ High Potential	 Coffee Claims Study Area	■ River/Lake
■ Moderate Potential	— Helicopter Transect	— Wetland
■ Kaminak High Priority	— Ground Transect	— River/Stream
■ Kaminak Moderate Priority	— Trail	— 30m Contour
 Number of Shovel Tests	— Main Road	

MAP 3: Coffee Claim Project Area HRIA Results

	MAPSHEETS:	LOCATION: Yukon River	PROPONENT: Kaminak Gold Corporation
	NTS: 115 J13, J14, J15, 115 O/2, O/3, O/4	UTM: E 587418 N 6970957 PROJECTION: NAD83 Zone 7	JOB #: Y11-010-CG

5.2 Heritage Resource Site Summaries

Four newly recorded pre-contact heritage sites were identified within the study area during the 2011 assessment. The following is a summary of all of these sites. Additional summaries are provided for previously recorded sites (**KfVk-1**, **KfVk-2**, **KfVk-3**) at which full site assessments were conducted.

KfVj-2 (Temporary Site Number M11-Kaminak-1)

KfVj-2 is a pre-contact subsurface cultural material site on top of a knoll feature along a large alpine ridge overlooking valleys of unnamed tributaries of Yukon River to the north and northeast. Surface exposure is 0% due to dense ground vegetation. The site consists of three stone flakes, two bones from a medium to large mammal, and several small unidentifiable calcined mammal bones. A full site assessment was conducted including 53 shovel tests (systematically placed at 5 m intervals as well as scattered judgmental tests). Cultural material was recovered from four shovel tests and the current site dimensions are 35 m north-south and 32 m east-west. The artifact types and bone fragments suggest the site may have served as a temporary camp where short-term tool maintenance and food processing occurred. Geochemical tests conducted by Jeff Rasic indicate that an obsidian artifact from **KfVj-2** originated from the Wiki Peak source near the Yukon/Alaska border. Negative shovel tests and natural topography indicate that the site does not extend beyond the knoll top. The area exhibits high heritage resource potential because of the relatively dry substrate on an elevated feature that offers excellent views of adjacent valleys and slopes. Disturbance to the site is minimal and is limited to tree throws. All artifacts were collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. The site is located in an alpine meadow with vegetation consisting of scattered white spruce with willow and shrub birch in the understory. Ground vegetation includes grass, fireweed, moss, and blueberry.

KfVj-3 (Temporary Site Number M11-Kaminak-2)

KfVj-3 is a pre-contact subsurface cultural material site on a prominent knoll along a high ridge feature overlooking a major creek to the southeast. The site is on relatively flat ground in a forested area adjacent to an open valley slope. Four stone flakes were identified in one shovel test location. A full site assessment was conducted including 40 shovel tests (systematically placed at 5 m intervals as well as scattered judgmental tests). Local topography and artifact types suggest use of the site as short-term game lookout where tools were repaired. The area exhibits high heritage resource potential because of the relatively dry substrate on a prominent feature that offers excellent views down the valley of a major creek confluence. Surface exposure is between 2-5% and disturbance is limited to tree throws and wind erosion along the exposed valley slope. Site dimensions are 2 m north-south by 2 m east-west. Negative shovel tests and steep surrounding terrain indicate that the site is confined to the knoll top. All artifacts were collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of aspen and white spruce with young aspen, rose, willow, and saskatoon in the understory. Ground cover includes fireweed, kinnikinnick, grass, and moss.

KeVj-1 (Temporary Site Number M11-Kaminak-3)

KeVj-1 is situated on a flat saddle feature in an alpine area adjacent to a prominent bedrock outcrop. The saddle offers good views northwest, west, and southwest down tributary valleys of a major creek. The site consists of pre-contact cultural material found in one surface find location. A full site assessment was conducted including 17 shovel tests (systematically placed at 5 m intervals as well as scattered judgmental tests). Surface exposure was between 40-50% due to wind erosion and as a result, several areas did not require shovel testing to determine the presence of cultural materials. Local topography and artifact types suggest short-term tool maintenance. The site is surrounded by low-lying saturated terrain and negative shovel tests indicate that cultural material is confined to the small saddle feature. Disturbance to the site is moderate as a result of wind erosion. All artifacts were collected for recording

purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of scattered birch, willow, black spruce, and shrub birch with ground cover consisting of avens, reindeer lichen, crowberry, and moss.

KfVvk-5 (Temporary Site Number M11-Kaminak-4)

KfVvk-5 is situated on a gently sloping feature overlooking a small tributary valley to the north. The site consists of pre-contact cultural material found by Ben McGrath of GroundTruth Explorations in one sediment sampling location. The site was not visited by an archaeological crew, therefore the following information is reconstructed from photographs and observations kindly provided by Mr. McGrath. Cultural material consists of the broken tip of an obsidian biface. Geochemical tests conducted by Jeff Rasic indicate that an obsidian artifact from **KfVvk-5** originated from the Edziza source in northeast British Columbia. The point was not found in the vicinity of a notable topographic feature or hydrological resource. Natural topography and a lack of associated flaking debris suggest that the site represents an isolated artifact that was dropped/discarded while people were moving through the area. The artifact may have also been transported to its current location by forces of erosion no longer operating due to dense ground vegetation. Surface exposure is less than 5%. Site dimensions are not known. The artifact was collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of scattered birch, willow, and black spruce with shrub birch in the understory. Ground cover consists of reindeer lichen, crowberry, and moss.

KfVvk-1 (Site Update)

KfVvk-1 was identified by Matrix during a PFR in 2010 and was fully assessed in 2011 to determine the spatial extent. The site is on a prominent knoll in an alpine area with good views east and northeast down tributary valleys of major creeks. The site consists of pre-contact cultural material found on flat ground on the knoll top adjacent to a bedrock outcrop. A total of 20 stone artifacts (flakes and several tools) were identified in 11 surface find locations in 2010 and 11 stone artifacts were recovered from seven surface find locations in 2011. Surface exposure (40-65%) was sufficient to assess the spatial extent of the site on the knoll feature. Shovel testing during the site assessment found flat and vegetated ground adjacent to the knoll to determine if the site extended beyond this topographic feature. Shovel tests failed to yield cultural material indicating that **KfVvk-1** is most likely confined to the knoll top with the exception of an erosional downwash surface that has delivered artifacts from the knoll top to the south slope of the knoll. All exposed surfaces were inspected for cultural material. Current site dimensions are 85 m north-south by 35 m east-west. Stone tools include a lanceolate biface, a notched projectile point, a potentially Chindahn obsidian point, a cobble chopper, a tabular biface, a gouge/scrapper, and a core. Geochemical tests conducted by Jeff Rasic indicate that the obsidian point originated from the Wiki Peak source near the Yukon/Alaska border. Artifact types suggest short-term but repeated occupation of the site over the course of several thousand years from the Early to Mid-Holocene. Disturbance to the site is moderate to high as a result of wind erosion on the exposed knoll top and downwash of artifacts. All artifacts were collected for recording purposes and will be forwarded to the Yukon Archaeology Program after cataloguing and analysis is complete. Site vegetation consists of white spruce, scrub birch, crowberry, reindeer lichen, grass, and moss.

KfVvk-2 (Site Update)

KfVvk-2 was identified by Matrix during a PFR in 2010 and was fully assessed in 2011 to determine the spatial extent. The site is on a bench feature in an alpine area with good views east and northeast down major creek valleys. The site is located adjacent to several high bedrock outcrops that offer 360° views of surrounding mountain slopes, valleys, and ridge tops. The site consists of pre-contact cultural material found in one surface find location on flat ground immediately south of a large bedrock outcrop. Subsurface shovel tests during the site assessment failed to yield additional cultural material indicating that the site is confined to a small area immediately south of a prominent bedrock outcrop. Site dimensions are 2 m north-south by 2 m east-west. The artifact type and density suggests short-term tool maintenance. Disturbance to the site is moderate as a result of wind erosion. Surface exposure is between 40-60%. Site vegetation consists of white spruce, blueberry, bunchberry, crowberry, reindeer lichen, grass, and moss.

Kfvk-3 (Site Update)

Kfvk-3 was identified by Matrix during a PFR in 2010 and was fully assessed in 2011 to determine the spatial extent. The site is on a prominent knoll in an alpine area with good views east and northeast down major creek valleys. The site consists of pre-contact cultural material found in one surface find location on flat ground on a knoll top adjacent to a bedrock outcrop. Surface exposure (60-70%) was sufficient to assess the spatial extent of the site on the knoll feature. Shovel testing during the site assessment was limited to flat and vegetated terrain adjacent to the knoll towards the bedrock outcrop to determine if the site extended beyond this topographic feature. Shovel tests and surface inspection in 2011 failed to yield cultural material indicating that **Kfvk-3** is most likely confined to the knoll top. The artifact type suggests general purpose activities at the site such as tool maintenance and use. Site dimensions are 2 m north-south by 2 m east-west. Disturbance to the site is moderate as a result of wind erosion on the exposed knoll top. Site vegetation consists of white spruce, willow, scrub birch, and reindeer lichen.

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6.0 RECOMMENDATIONS

This section provides recommendations resulting from this study, including a discussion of options for managing heritage sites identified during future development planning or construction.

6.1 Heritage Resource Potential and Resource Values

Areas considered to have high to moderate pre-contact heritage resources potential are typically near hydrological resources on distinct, well-drained topographic features or are in upland areas on prominent landforms that provide good vantage points or strategic hunting positions. Generally, moderate and high potential areas are more frequent in the upland portions of the study area and along the lower portion of the major creek valleys. This is because the upland areas provide easier travel and access to hunting locations whereas upper valleys are steeply sloped. From the archaeological record, it is inferred that larger, more permanent pre-contact sites will be positioned adjacent to the major hydrological features (*i.e.*, Yukon River). Post-contact heritage resources potential is highest along gold-bearing creek beds. Major drainage valleys in the study area have not been subjected to extensive dredging operations and therefore there is a high likelihood that if early mining sites were located in the area, they are still preserved.

Based on results of the initial HROA conducted in 2010, it was expected that most heritage sites in the proposed study area will consist of small, short-term camps related to hunting, trapping, or travel activities. Sites resulting from these activities are normally manifested as small lithic scatters; however, local environmental and geological conditions such as acidity and calcareous sediments may support the preservation of some organic materials. The remains of structures were not expected to be readily visible in this area given the short-term settlement occupation and previous forest fires, but there may be evidence of cultural depressions.

6.2 Recommendations

Several areas within the Kaminak Gold Coffee Claim area were assessed as having moderate to high heritage potential in the 2010 HROA (Kristensen and Heffner 2010). The preferred management option for areas with moderate to high heritage resources potential is avoidance. Preliminary Field Reconnaissances (FFRs) and/or Heritage Resources Impact Assessments (HRIAs) are recommended in order to ground-truth heritage resources potential and negate or confirm the presence of heritage resources prior to any ground disturbance. An HRIA was recommended in 2011 in order to document above- and below-ground heritage resources in 27 proposed development areas that contained moderate or high heritage resource potential zones. HRIA fieldwork conducted in 2011 resulted in the discovery of three pre-contact heritage sites (**KfVj-2**, **KfVj-3**, and **KeVj-1**) with an additional pre-contact site (**KfVj-5**) discovered by GroundTruth Explorations during sediment sampling. In addition, three previously discovered pre-contact sites (**KfVj-1**, **KfVj-2**, and **KfVj-3**) in the vicinity of proposed developments were

fully assessed to determine spatial extent. Specific management recommendations regarding **KfVj-2**, **KfVj-3**, **KeVj-1**, **KfVk-5**, **KfVk-1**, **KfVk-2**, and **KfVk-3** are outlined below.

Moderate and high heritage resources potential zones assessed during the 2011 HRIA are shown on Map 3. Heritage resources potential zones were refined as a result of 2011 fieldwork. Management recommendations for the four newly discovered pre-contact sites and three pre-contact sites revisited in 2011 and in order of preference are as follows:

- 1) Avoidance. If the site areas and appropriate buffers (30 m) around the sites can be avoided by mining developments, then no further heritage assessments are recommended.
- 2) If the site areas cannot be avoided, systematic data recovery is recommended prior to any potentially ground-altering development activities.

No further heritage work is recommended for the remaining 27 areas that failed to yield cultural material. However, to ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that subcontractors are informed that, in the event that heritage resources are encountered during mineral exploration, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon, and Tr'ondëk Hwëch'in First Nation must be contacted immediately with information on the heritage remains and the nature of the disturbance.

Heritage resources are protected from non-permitted alterations or disturbance by the *Historic Resources Act* (Government of Yukon 2002) and the *Archaeological Sites Regulations* (Government of Yukon 2003).

The HRIA was designed solely for the management of heritage resources. It should not be considered to be applicable to traditional or contemporary land use by First Nations. It is recommended that concerns regarding traditional Aboriginal use in the Kaminak Gold Coffee Claim area are discussed with the Tr'ondëk Hwëch'in First Nation.

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APPENDIX A

Glossary of Archaeological Terms

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ABORIGINAL; INDIGENOUS: Pertaining to the original occupants of a given region.

A-HORIZON: the uppermost, often dark-coloured natural level in a soil profile characterized by roots, humus, and a lack of clay, iron, carbonates and soluble salts which have leached to lower levels.

ARCHAEOLOGY: The science concerned with the recovery, analysis, description, and explanation of the remains of past human cultures.

ARCHAEOLOGICAL SURVEY OR SITE INVENTORY: Examination of a locality for evidence of past human activity and the recording of that evidence to produce an inventory of sites in that locality.

ARTIFACT: Any manually portable product of human workmanship. In its broadest sense includes tools, weapons, ceremonial items, art objects, all industrial waste, and all floral and faunal remains modified by human activity. In the Yukon, an artifact is an object that is older than 45 years and has been abandoned.

BARK-STRIPPED TREE: A tree which has had bark removed by First Nations people for a number of possible purposes (e.g., fibre, food, medicine)

BASALT: A fine-grained volcanic rock used for the manufacture of chipped stone artifacts. Colour ranges from black to grey; texture granular to glass like.

B-HORIZON: That natural level within a soil profile which directly underlies the surficial A-horizon and which contains the clay, iron oxides and carbonates which have leached down from it.

BIFACE: A stone artifact flaked on both sides.

BORDEN NUMBER: A standardized number consisting of four letters and one number assigned to each archaeological site which identifies it and denotes its general location in Canada.

BORDEN SYSTEM: A code of 4 letters and a number used to designate archaeological sites in Canada (e.g., GtRx 7; FIJr 10). Proposed by Charles E. Borden, University of British Columbia, in 1954. The alphabetic prefix refers to a block of 10 minutes by 10 minutes within a grid system that covers all of Canada south of 62° N latitude. The numerical suffix indicates the site within this block in numerical order of registration.

CACHE: A deliberate store of equipment, food, furs or other resources placed in, or on the ground (perhaps protected by a rock CAIRN), or raised above the ground on a platform.

CACHEPIT: Small circular depressions (less than 3 m) that were used to store food.

CHALCEDONY: A semi-translucent silicate (quartz) rock with a wax-like luster and a great range of colours. Used as raw material for the manufacture of chipped stone artifacts. Commonly called agate.

CHEKT: A mainly opaque, fairly granular, silicate rock with a dull shiny luster and a great range of colours, used as raw material for the manufacture of chipped stone artifacts. Varieties include jasper and flint.

CONCHOIDAL FLAKE: A type of spall resulting from the fracture of fine-grained, or glassy rocks. Characterized by a bulb of percussion, striking platform remnant, and extremely sharp edges. A predictable fracture pattern that allows the manufacture of predetermined tools from these materials.

CONTACT: The time of first prolonged direct contact between First Nations peoples and Europeans. The term is synonymous with the Historic period which is characterized by contemporary written works.

CONTEXT: The spatial relationships of archaeological items and samples within a site. "Primary Context" refers to materials found in their original position; "Secondary Context" refers to materials which have been displaced and redeposited by disturbance factors; "Geological Context" is the relationship of the archaeological finds to geological strata.

CONCENTRATION: A notable accumulation of archaeological materials in a small area, such as a "concentration of flakes" etc.

CORE: (1) A blocky nucleus of stone from which flakes or blades have been removed (see MICROBLADE CORE). (2) A column or lineal sample of materials obtained by "coring" the ground, trees, etc.

CORTEX: The naturally weathered outer surface of a pebble.

CULTURE: The distinctive lifeway – including language, technology, sustenance, social organization, customs, beliefs and rituals – practiced by a people. This term can also be used to refer to the culture of particular groups of people at a particular point in time. In an archaeological context, the term culture refers to materials or objects of human origin, in contrast to natural.

CULTURAL DEPOSIT: Sediments and materials laid down by, or heavily modified by, human activity.

CULTURAL DEPRESSION: A pit excavated by people into natural sediments. Pits have been excavated for a variety of reasons including: houses (pithouses, house pit), food storage (cache, cache pit), food cooking (roasting pit, berry trenches, hearth) and burials.

CULTURALLY MODIFIED TREE (CMT): A tree that had been intentionally altered in some way. CMTs usually consists of bark-stripped trees, that is, trees that have had the bark to access the cambium for eating, for extracting tree sap, for manufacture, or for medicinal purposes, by First Nations people. Blazed trees may also be referred to as CMTs.

CULTURE SEQUENCE: The chronological succession of cultural traits, phases or traditions in a local area.

CULTURE TYPE: A chronologically limited cultural unit within a local culture sequence, characterized by sufficient descriptive traits to set it apart from all other units. A phase is generally represented by 2 or more components in several sites and is the basic classification of archaeological "cultures".

DACITE: Volcanic rock (or lava) that characteristically is light in color and contains 62% to 69% silica and moderate amounts of sodium and potassium.

DATUM: A fixed reference point on an archaeological site from which measurements are taken.

DEBRIS: Waste by-products from tool manufacture.

DETRITUS: Waste by-products from tool manufacture. Most frequently applied to chips and fragments resulting from stone flaking.

DISTURBANCE: A cultural deposit is said to be disturbed when the original sequence of deposition has been altered or upset by post-depositional factors. Agents of disturbance include natural forces such as stream or wind erosion, plant or animal activity, land-slides etc.; and cultural forces such as later excavations.

ETHNOGRAPHIC ANALOGY: Interpretation of archaeological remains by comparison to historical cultures.

ETHNOGRAPHY: That aspect of cultural anthropology concerned with the descriptive documentation of living cultures.

ETHNO-HISTORY: The study of ethnographic cultures through historical records.

ETHNOLOGY: The aspect of cultural anthropology concerned with the comparative and processional analysis of ethnographic cultures.

FAUNAL REMAINS: Bones and other animal parts found in archaeological sites. Important in the reconstruction of past ecosystems and cultural subsistence patterns (see: MICROFAUNAL REMAINS).

FEATURE: A non-portable product of human workmanship. Usually clusters of associated objects; pit houses, structures, hearths, cache pits, mining activities, cooking ovens, etc.

FLAKE: A fragment removed from a core or nucleus of cryptocrystalline or fine-grained rock by percussion or pressure. May be used as a tool with no further deliberate modification, may be RETOUCHEED, or may serve as a PREFORM for further reduction.

FLINT: A microcrystalline silicate rock similar to CHERT, used for the manufacture of flaked stone tools. Colour most commonly grey, honey-brown, or black.

GROUND STONE: Stone artifacts shaped by sawing, grinding, and/or polishing with abrasive materials (e.g., "ground slate knives", "polished soapstone pendants").

HEARTH: A fireplace, often circular and may be unlined, rock or clay-lined, or rock-filled. Minimally consists of fire-altered rock and charcoal.

HERITAGE RESOURCES IMPACT ASSESSMENT (HRIA): A study undertaken for a proposed development project to determine whether it will adversely affect historical, archaeological, or paleontological remains, generally indicated by the presence of shovel tests.

HERITAGE SITE: A location of archaeological or historical interest that contains evidence of past human activities. Heritage sites may consist of artifacts or features.

HISTORIC ARCHAEOLOGY: The archaeological investigation of POST-CONTACT sites.

HISTORIC PERIOD: The time after European contact or the beginning of written recording. In the Yukon, this period dates to the past 100 to 150 years.

HORIZON: Layer typical of the soil profile in a particular region.

HOUSE PIT: An aboriginally excavated house floor. See PITHOUSE.

IN SITU: Archaeological items are said to be "*in situ*" when they are found in the location where they were last deposited.

LITHIC: Of or pertaining to stone. A lithic artifact is one manufactured from stone.

LITHIC INDUSTRY: That part of an archaeological artifact assemblage manufactured of stone.

LITHIC SCATTER: An archaeological site consisting of two or more stone artifacts.

LITHIC TECHNOLOGY: The process of manufacturing tools etc., from stone. Most frequently refers to stone flaking.

LOCALITY: A very large site or site-area composed of 2 or more concentrations or clusterings of cultural remains.

MATRIX: An inclusive term for the natural and cultural sediments of an archaeological site.

MICROFAUNAL REMAINS: Very small animal remains, such as rodent bones, tiny bone fragments, insects, small molluscs, etc., discovered in an archaeological site.

MIDDEN: A deposit of camp refuse associated with human occupational sites. Most frequently refers to coastal SHELL-MIDDENS.

MUNSELL COLOUR CODE: A system of describing colours by a code of letters and numbers defining "hue", "value" and "chroma". Important in accurately describing the colours of archaeological soils and sediments.

OBSIDIAN: Natural volcanic glass. Colour ranges from nearly translucent through black, red and green. The most easily flaked raw material for the manufacture of flaked stone tools.

PALEOSOL: "Old Soil." Buried soil horizons indicative of past soil conditions different from that presently prevailing.

PETROGLYPH: Pictures, symbols, or other artwork pecked, carved or incised on natural rock surfaces.

PICTOGRAPH: Aboriginally painted designs on natural rock surfaces. Red ochre is the most frequently used pigment and natural or abstract designs may be represented.

PITHOUSE: A semi-subterranean "earth-lodge" winter dwelling. Usually consisted of an earth-covered log framework roof over a circular to rectangular excavation. The archaeological feature is called a housepit.

POST-CONTACT PERIOD (Also "Historic Period"): Refers to the period following the first arrival of Europeans.

POT-HUNTER: An "amateur archaeologist" who vandalizes and destroys sites to add to his private collection, or for monetary gain.

PRE-CONTACT: Refers to the period before the first arrival of Europeans in a given area.

PREHISTORIC: The period prior to written records for any given area. In North America synonymous with PRE-CONTACT.

PRELIMINARY FIELD RECONNAISSANCE (PFR): A study undertaken for a proposed development project to determine whether it will adversely affect heritage remains, generally indicated by the lack of need for shovel tests.

PROJECTILE POINT: An inclusive term for arrow, spear or dart-points. Characterized by a symmetrical point, a remarkably thin cross-section and some element to allow attachment to the projectile shaft. Flaked stone projectile points are usually classified by their outline form: triangular, leaf-shaped, lanceolate, stemmed, corner-notched, and side-notched.

PROVENIENCE: The horizontal and/or vertical position of an object in relation to a set of spatial coordinates.

QUARTZ CRYSTAL: Pure silicate rock-crystal. Usually perfectly clear with six crystal surfaces. May be used as a raw material for lithic tool manufacture.

RETOUCH: The removal of small secondary flakes along the edge of a lithic artifact to improve or alter the cutting properties of that edge. Retouch flaking may be BIFACIAL or UNIFACIAL.

RETOUCHED FLAKE: A stone flake which has had one or more edges modified by the deliberate removal of secondary chips.

ROCK-SHELTER: A shallow cave or rock overhang large enough to have allowed human occupancy at some time.

SCRAPER: A tool presumably used in scraping, scouring, or planing functions. Most frequently refers to flaked stone artifacts with one or more steep UNIFACIALLY RETOUCHED edge(s).

SETTLEMENT PATTERN: The spatial distribution of cultural activities across a landscape at a given moment in time.

SHOVEL-SCREENING: A rapid excavation procedure in which the site matrix is shoveled directly through a screen (usually 1/4" mesh).

SHOVEL TEST: a small scale, generally informal test excavation to ascertain the nature of the deposits, to determine the presence or absence of a heritage site, or to delimit the boundaries of a known site.

SITE: Any location with detectable evidence of past human activity. Includes HISTORICAL SITES, HABITATION SITES, KILL-SITES, QUARRY SITES, ROCK-ART SITES, BURIAL SITES, etc. See HERITAGE SITE.

SITE SURVEY: The process of searching for and describing heritage sites in a given area.

SOIL-SAMPLE: A quantity of soil, site matrix, or sediments collected for physical, or chemical analysis.

STORAGE-PIT (Also called CACHE-PITS): Circular excavations usually less than 3 m in diameter assumed to have aboriginally functioned as storage "cellars".

STRATA: Depositional units or layers of sediment distinguished by composition or appearance. (Singular: "stratum").

STRATIGRAPHY: The study of various deposits, built up over time, which form delineated layers (such as ash, charcoal or crushed shell) in the earth walls of a pit.

SURVEY(ING): (1) In Archaeology, the process of locating archaeological sites. (2) More generally, the process of mapping and measuring points on the ground surface.

SURVEY AREA: The region within which heritage sites are to be located.

TOOL: An artifact that has been intentionally modified or formed for a specific purpose (e.g., projectile point, knife, scraper).

TYPE: A distinctive formal artifact class restricted in space and time, e.g., the "Folsom Point" is a projectile point "type".

TYPOLGY: The classification of artifacts according to analytical criteria, to determine and define significant trends or variations in time and space.

UNIFACE: A stone artifact flaked only on one surface.

USE-WEAR: Polish, striations, breakage, or minor flaking which develop on a tool's edge during use. Microscopic examination and study of the wear may indicate the past function of tools.

APPENDIX B

Heritage Site Maps

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APPENDIX C

Pre-contact Artifact Photographs

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Appendix D

Project Photographs

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Appendix E

Modified Artifact and Debitage Catalogues

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WETLAND: Areas of land that are inundated by surface water or ground water sufficient to support the growth and reproduction of vegetative and aquatic life.

WORKED: Having chips, flakes, scratches or other evidence of deliberate modification on stone, bone, antler, shell, etc.

ZOOARCHAEOLOGY: The study of faunal remains found in archaeological sites and their cultural significance.

Modified from:

A Glossary of Terms: Artifacts BC.
<http://www.for.gov.bc.ca/archaeology/glossary.htm>

A Glossary of Manitoba Archaeology
<http://www.umanitoba.ca/faculties/arts/anthropology/manarchnet/appendices/glossary.html>

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QFD: Archaeological Assessments Permit Report – Arcas 1999

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APPENDIX 26-A-3

Heritage Resources Overview Assessment for a Proposed Access Road Corridor to the Coffee Property

**Heritage Resources Overview
Assessment for a Proposed
Access Road Corridor to the
Coffee Property**



Prepared for:
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HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Introduction
March 21, 2017

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HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Introduction
March 21, 2017

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Teri-Lee Isaac from Selkirk First Nation (SFN) also contributed information and we thank her for her input and comments.

Ruth Gotthardt, Christian Thomas and Rebecca Jansen at the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon, discussed the assessment with us and provided information on past heritage resources work in the study area. Rebecca also provided us with access to the Yukon Historic Sites Database. We thank them for their input and comments.

Anne MacLeod of EDI Environmental Dynamics Inc. provided information on potentially heritage-related field observations made by their crews within the proposed access road corridor.



HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Introduction
March 21, 2017

Management Summary

This report details the results of a Heritage Resources Overview Assessment (HROA) for a proposed access road corridor to the Coffee Property, completed by Stantec on behalf of Kaminak Gold Corporation, now a wholly owned subsidiary of Goldcorp Inc. (referred herein as Kaminak Gold Corporation).

The HROA was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process and/or as a requirement to obtain a Mining Land Use Permit. The objective of this heritage study was to determine heritage potential within the proposed access road corridor. Based on the HROA findings, a number of areas have been classified as having elevated heritage potential. It is recommended that a field-based Heritage Resource Impact Assessment (HRIA) be conducted prior to any potentially land-altering development activities located within 30 meters of areas identified as having elevated heritage potential.

Heritage resources are protected from non-permitted alterations or disturbance by the *Historic Resources Act* (Government of Yukon 2002) and the *Archaeological Sites Regulations* (Government of Yukon 2003a). To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation and Goldcorp Inc. inform their personnel and contractors that, in the event that heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon, and the appropriate First Nation(s) must be contacted immediately with information on the heritage remains and the nature of the disturbance. Information on the identification of heritage resources can be found in a publication entitled *Handbook for the Identification of Heritage Sites and Features* (Gotthardt and Thomas 2005).

This study was designed as a HROA and was not intended to evaluate or comment on traditional Aboriginal use of the areas in which development is proposed. The results of this study, therefore, should not be considered valid for that purpose.

The opinions, recommendations, omissions, and/or errors in this report are those of Stantec alone and do not necessarily reflect the positions held by Kaminak Gold Corporation, Goldcorp Inc., involved First Nations, or the Government of Yukon.



HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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Abbreviations

BP	before present
GIS	geographic information system
HRIA	Heritage Resources Impact Assessment
HROA	Heritage Resources Overview Assessment
NND	First Nation of Na-Cho Nyäk Dun
PFR	Preliminary Field Reconnaissance
TH	Tr'ondëk Hwëch'in
SFN	Selkirk First Nation
YESAB	Yukon Environmental and Socio-economic Assessment Board
Stantec	Stantec Consulting Ltd.
TK	Traditional Knowledge
TLU	Traditional Land Use
mya	million years ago
NWMP	North-West Mounted Police

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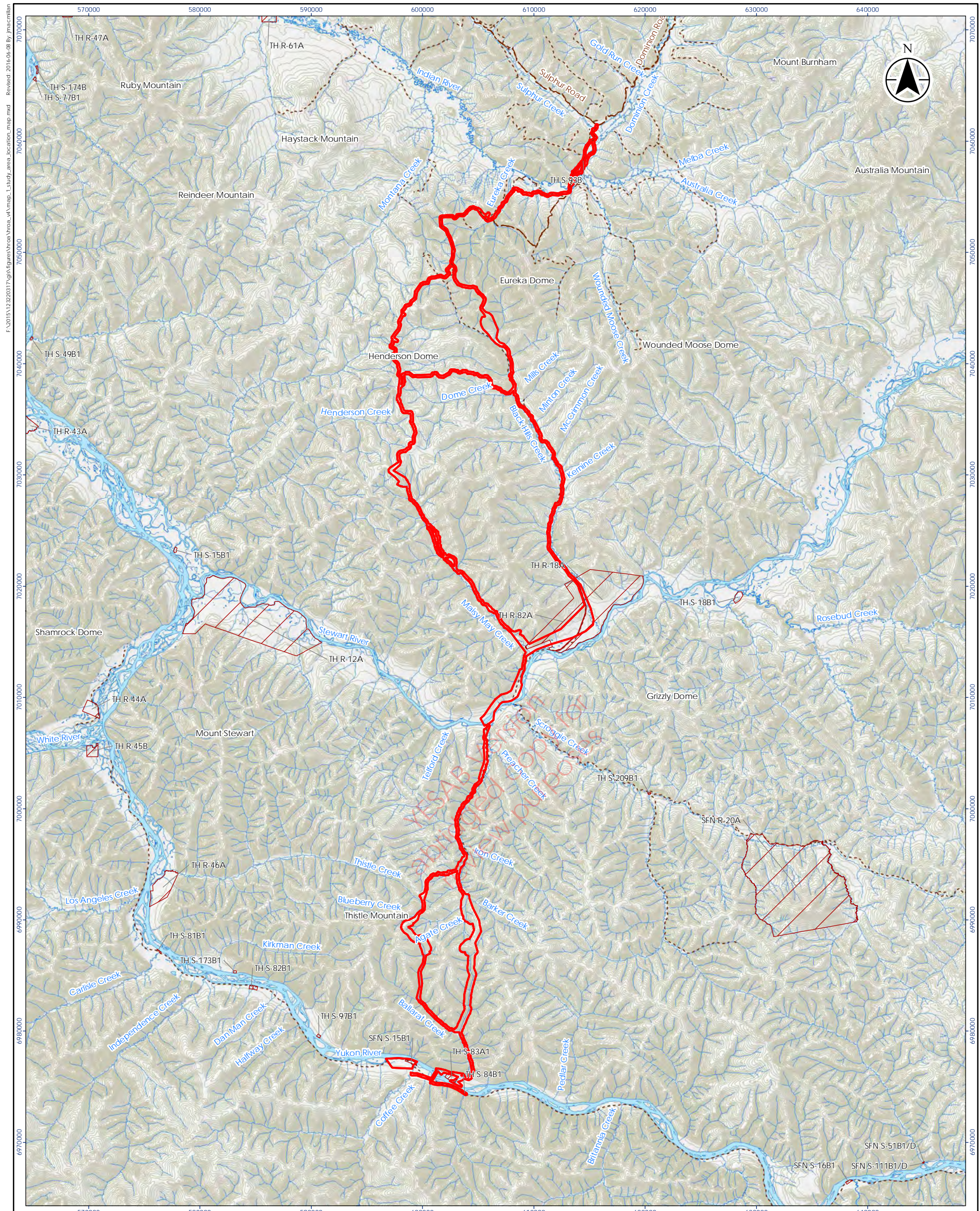
Introduction
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1.0 INTRODUCTION

This report details the results of a Heritage Resources Overview Assessment (HROA) for the proposed access road corridor to the Coffee Property completed by Stantec on behalf of Kaminak Gold Corporation. The HROA study area consists of a road corridor with a varying width.

The study area is located approximately 58 km south/southeast of Dawson City, Yukon (Figure 1) and lies within the Yukon Plateau-Central and Klondike Plateau ecoregions. The proposed road corridor is connected to existing roads (Hunker, Sulphur, Upper Bonanza roads) which run south of Dawson City through the Klondike Gold Fields. The proposed access road corridor runs south over the Stewart River to the Yukon River and ends at the Coffee Property. The proposed road corridor begins at the confluence of Sulphur and Dominion creeks and follows Dominion Creek to the south/southwest. It then heads west/southwest along Indian River and south/southwest along Eureka Creek. The proposed road corridor heads south and splits when it is to the west of Eureka Dome. One route heads south through the Black Hills and alongside Black Hills Creek to the Stewart River and then heads south/southwest meeting up with the second proposed route at Maisy May Creek. The alternative route heads south from the splitting point and passes through Henderson Creek and then south/southeast along Maisy May Creek to the Stewart River where the road corridor becomes one again. After crossing Stewart River the proposed road corridor follows Barker Creek south. The proposed road corridor again splits into two options. One option heads south towards Thistle Mountain and south/southeast along Ballarat Creek to the Yukon River. The other option heads south along Agate Creek and then rejoins at Ballarat Creek. The road route then crosses the Yukon River and heads west to the Coffee Property. There is also a portion of the proposed road corridor which runs east to west near Henderson Dome to Mills Creek just north of Dome Creek (Figure 1).

The HROA was anticipated to be required as part of the Yukon Environmental and Socio-economic Assessment Board (YESAB) proposed development review process and/or as a requirement to obtain a Mining Land Use Permit. The objective of this heritage study was to determine heritage potential within the proposed access road corridor.



- Legend**
- 30 m Contour
 - Secondary Road
 - Trail
 - Watercourse
 - Waterbody
 - Waterbody, Intermittent
 - First Nation Settlement Land
 - Proposed Road Corridor

0 7 14 Kilometres
1:350,000 (At Original document size of 11x17)



Project Location 123220317
 NTS Map Sheets: 115 J/14, 15
 115 O/02, 03, 06, 07, 10, 11
 Prepared by J. MacMillan on 2016-03-01
 Technical Review by T. Helfner on 2016-03-02

Client/Project
 Kaminak Gold Corporation
 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
 1.0
 Title

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 7N
 2. Base Data Source: Government of Canada

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

Study Area Location

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1.1 REPORT FORMAT

This report is divided into seven sections and one Appendix.

Section 1.0: Introduction

This section introduces the HROA, the relevant legislative references and definitions, and provides a summary of contacts made with First Nations.

Section 2.0: Heritage Assessment Description

This section discusses the intent of the HROA in relation to the proposed development.

Section 3.0: Study Area

This section describes the environmental, ethnographic and ethnohistorical background of the study area and discusses post-contact history in the region. A brief overview of previous archaeology within the area is also presented.

Section 4.0: Methods

This section discusses the methods used while conducting the HROA.

Section 5.0: Results

This section summarizes the results of the HROA and provides a map of elevated heritage potential zones in the development area.

Section 6.0: Recommendations

This section provides recommendations for the management of heritage resources potential identified during the HROA.

Section 7.0: References Cited

This section lists bibliographic information for all references cited in this report.

Appendix

Included with this report is one appendix containing a glossary of archaeological terms.

1.2 LEGISLATIVE REFERENCES

The *Historic Resources Act* (Government of Yukon 2002) and *Archaeological Sites Regulations* (Government of Yukon 2003a) contain legislation that ensures the management and protection of Yukon archaeological and historical resources. This legislation applies to archaeological and historical sites on both private and public land that are older than 45 years. Archaeological and historical sites are protected from unpermitted surveys, disturbances, alterations or excavations.

The *Yukon Territorial Lands Act Land Use Regulations* (Government of Yukon 2003b) contains regulations regarding operations around, and the discovery of archaeological sites. Section 9(a) of the Regulations stipulates that "no permittee shall, unless expressly authorized in their permit or



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expressly authorized in writing by an inspector, conduct a land use operation within 30 m of a known monument or a known or suspected archaeological site or burial ground.” Furthermore, Section 15 states that “Where, in the course of a land use operation, a suspected archaeological site or burial ground is unearthed or otherwise discovered, the permittee shall immediately (a) suspend the land use operation on the site; and (b) notify the engineer or an inspector of the location of the site and the nature of any unearthed materials, structures, or artifacts.”

Chapter 13 of the Umbrella Final Agreement (Government of Canada et al. 1993) provides regulations for the ownership and management of heritage resources found within First Nation Settlement Lands and Traditional Territories. Section 3.1 states that each Yukon First Nation shall own and manage heritage resources found on its Settlement Land. Under section 3.2, ethnographic moveable heritage resources recovered from its Traditional Territory that are not public records or private property, are owned and managed by the First Nation.

Schedule 1 of the Yukon Quartz Mining Land Use Regulations (Government of Yukon 2003c) applies to all quartz mineral claims or locations in the Yukon, and provides regulations related to the discovery of and operations around heritage sites. Section E(8) states that “Exploration activities must not be carried out within 30 m of a known archaeological or palaeontological site unless the Chief [of Mining Land Use] indicates, in writing, that such activities may be carried out.” Additionally, Section E(9) states that “Any sites containing archaeological objects, paleontological objects or human remains or burial sites discovered in the course of carrying out an exploration program must be immediately marked and protected from further disturbance and, as soon as practicable, the discovery reported to the Chief [of Mining Land Use].” No other operations are to be conducted within 30 m of the site until permission is granted.

Schedule 1 of the Yukon Placer Mining Land Use Regulations (Government of Yukon 2003d) prohibits disturbances to discovered and undiscovered archaeological sites. Section D(6) states that “All archaeological sites and burial grounds must be avoided. If such a site is encountered in the course of an operation, it is to be marked, reported to the Chief [of Mining Land Use] and protected from further disturbance until authorization is given by the Chief [of Mining Land Use].” These regulations apply to lands on which a placer mining lease has been granted.

1.3 FIRST NATIONS REFERRAL AND CORRESPONDENCE

The area assessed during this study is located within the traditional territories of the Tr'ondëk Hwëch'in, Selkirk First Nation (SFN) and First Nation of Na-Cho Nyäk Dun (NND). Stantec contacted each First Nation to initiate discussions concerning the HROA and to obtain any existing traditional land use information or oral history pertinent to the study area. Comments and information supplied by the Tr'ondëk Hwëch'in First Nation and Selkirk First Nation were received and considered during the study.



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Heritage Assessment Description
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2.0 HERITAGE ASSESSMENT DESCRIPTION

A HROA is a detailed desktop review of a prescribed study area to classify the land base into zones of heritage potential. The aim of a HROA is to assess the potential for heritage resources (such as archaeological or historical sites) and to make recommendations concerning the need and scope for further heritage studies.

During this HROA, background research was conducted into the natural and cultural setting of the study area. The physical characteristics of the land base were reviewed in detail to determine the level of potential for heritage sites. The research component of this HROA included a review of relevant literature, such as historical and archival documents and maps, published ethnographic and historical volumes, and unpublished archaeological reports. Local knowledge is an important component of heritage studies; the Tr'ondëk Hwëch'in, Selkirk First Nation and First Nation of Na-Cho Nyäk Dun were contacted and a request for relevant traditional land use information was made. Spatial data for the study area was also researched and compiled, including digital and hardcopy topographic and resource maps, digital elevation models, fish and wildlife habitat mapping, surficial and bedrock geological mapping, historical and contemporary air photos, and digital imagery. This information was used to create a conceptual model of past human activities within the study area. The characteristics of the landscape were analyzed to determine where those activities may have occurred.

These results are presented on Maps 2.1–2.21, while polygon shapefiles of elevated heritage potential zones are also provided to facilitate project planning and heritage resource management. No further heritage studies are recommended in zones identified as possessing low heritage resources potential. In the event that zones of elevated heritage resources potential are identified within the development area, recommendations are provided for further heritage studies (e.g., Preliminary Field Reconnaissance (PFR) or Heritage Resources Impact Assessment (HRIA)). Please note that additional data resulting from any future Traditional Knowledge (TK) and Traditional Land Use (TLU) research may indicate additional areas of elevated heritage potential.

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Study Area
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3.0 STUDY AREA

3.1 STUDY AREA LOCATION

The study area is located in west-central Yukon within the traditional territories of the Tr'ondëk Hwëch'in, Selkirk First Nation and First Nation of Na-Cho Nyäk Dun. It is located approximately 58 km south/southeast of Dawson City in the Yukon Plateau-Central and Klondike Plateau ecoregions. The proposed access road corridor is connected to existing roads (Hunker, Sulphur, and Upper Bonanza roads) and runs south of Dawson City through the Klondike Gold Fields.

The proposed road corridor is connected to existing roads (Hunker, Sulphur, Upper Bonanza roads) which run south of Dawson City through the Klondike Gold Fields. The proposed access road corridor runs south over the Stewart River to the Yukon River and ends at the Coffee Property. The proposed road corridor begins at the confluence of Sulphur and Dominion creeks and follows Dominion Creek to the south/southwest. It then heads west/southwest along Indian River and south/southwest along Eureka Creek. The proposed road corridor heads south and splits when it is to the west of Eureka Dome. One route heads south through the Black Hills and alongside Black Hills Creek to the Stewart River and then heads south/southwest meeting up with the second proposed route at Maisy May Creek. The alternative route heads south from the splitting point and passes through Henderson Creek and then south/southeast along Maisy May Creek to the Stewart River where the road corridor becomes one again. After crossing Stewart River the proposed road corridor follows Barker Creek south. The proposed road corridor again splits into two options. One option heads south towards Thistle Mountain and south/southeast along Ballarat Creek to the Yukon River. The other option heads south along Agate Creek and then rejoins at Ballarat Creek. The road route then crosses the Yukon River and heads west to the Coffee Property. There is also a portion of the proposed road corridor which runs east to west near Henderson Dome to Mills Creek just north of Dome Creek.

3.1.1 Palaeoenvironmental Background

Many Pleistocene and Holocene environmental processes and events have shaped the current landscape of the central Yukon. Unlike many areas of the Yukon, the Klondike Plateau ecoregion went largely unglaciated, with the exception of local glaciers in the Sixtymile River Valley, peaks in the Dawson and Kluane Mountain Ranges and in the Wellesley Basin. Around three million years ago (mya), the plateau was drained through a system that began in the Ogilvie Mountains in the north of the region and travelled south towards the St. Elias Mountains and into the Pacific Ocean. A large glacial lake then saw a brief existence at the mouth of Fifteenmile River in the north of the ecoregion which diverted those headwaters towards the northwest (Smith et al. 2004). Subsequently, the Yukon River established itself as the primary drainage of the Klondike Plateau and formed the system we know today.



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The Central Yukon Plateau was witness to at least four Pleistocene glaciations (Bostock 1966, Jackson et al. 1996). Prior to glaciations the area was drained by a paleo-Yukon River that drained south into the Gulf of Alaska. The Reid Glacial maximum occurred in the western part of this ecoregion and is visible in the moraines and melt water channels evident in the terrain today. During the McConnell Glaciation (~24,000 years ago), the ice reached its maximum in the eastern part of the central plateau forming very sharp-edged glacial features now visible in the terrain (Bostock 1966, Jackson 1997a,b). Glacial events eventually forced the Yukon River towards the trajectory that it takes today. Volcano Mountain, located in the northwest portion of the ecoregion, erupted sometime between 5,000 and 10,000 years ago (Jackson and Stevens 1992).

3.1.2 Modern Environmental Background

The Klondike Plateau can be characterized as a region containing smooth-topped ridges or plateaus separated from one another by deep, narrow V-shaped valleys typical of areas that were not glaciated in the recent past (Smith et al. 2004). Southern facing slopes are characterized by grasslands whereas north-facing slopes support forested areas underlain by near-surface permafrost. The region is faced with typical continental climates featuring warm summers and very cold winters with 300-500 mm of annual precipitation. The uplands located in the northwest of the ecoregion receive the most precipitation. Temperatures range between -32°C and -23°C in January and 10°C to 15°C in July with a mean annual temperature at about -5°C (Smith et al. 2004: 162). The coldest recorded temperature in North America (-68.8°C) was recorded in Snag, located in the southwestern portion of the Klondike Plateau. The Yukon River is the plateau's principal drainage system with peak flows in the area occurring in May during the snowmelt and again in the summer after the peak rainfall season (Smith et al. 2004:163). Permafrost in the plateau is best described as widespread but discontinuous, often found in valley bottoms and upland soils (EBA 1988).

The Klondike Plateau is dominated by white and black spruce forests and marks the northern extent of lodgepole pine. Other tree species include balsam poplar, paper birch and trembling aspen. The forty-mile barren-ground caribou herd is believed to have numbered up to half-a-million individuals towards the 1850's but these numbers decreased to a low of 6,500 in the 1930s (US Bureau of Land Management et al. 1995). Other ungulates include the Dall sheep, moose, and mule deer. Carnivores include wolverines, lynx, coyotes, wolves, marten, grizzly bear and black bear whereas rodents include the snowshoe hare and the woodchuck (Smith et al. 2004: 167). Two important bird migration corridors are located within the Klondike Plateau: the Shakwak Trench in the south and the Tintina Trench in the north. The former is witness to the migration of swans, geese, ducks and shorebirds and is a popular breeding ground for Trumpeter Swan, American Widgeon, and a variety of ducks and shorebird species (Department of Renewable Resources 1994). The Tintina Trench is important for the breeding and migration of swans, geese and Sandhill Cranes (Soper 1954; McKelvey 1977). Salmon runs along this portion of the Yukon River include Chinook salmon in late June/July followed by Chum salmon in August/September (Osgood 1971). Other fish species present in the Klondike Plateau include the



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Arctic lamprey, longnose sucker, northern pike, lake trout, least cisco, lake whitefish, broad whitefish, round whitefish, Inconnu, Arctic grayling, burbot and slimy sculpin (Government of Yukon 2009).

Unlike the Klondike Plateau, the Central Yukon Plateau witnessed far more extensive glacial events. The area features rounded and rolling hills, plateaus and broad valleys dotted with numerous lakes and streams. The valleys served as passages for melt waters during the Cordilleran glaciations. The Yukon River bisects the central plateau into northern and southern portions. The Pelly, Teslin and Stewart Rivers, which empty into the Yukon further west, are the other major hydrological features of the Central Yukon Plateau. The majority of the ecoregion lies within the rain shadow of the St. Elias Mountains to the southeast and as a result the area is relatively dry, receiving only 250-300 mm of annual precipitation, most of which falls in the summer. January temperatures range from -30°C to -20°C whereas July temperatures range from 10°C to 15°C and mean annual temperatures average around - 4°C (Smith et al. 2004). Moist sediments located in valley floors and up slopes occasionally contain permafrost (Burgess et al. 1982). The Central Yukon Plateau mostly consists of a montane boreal forest below 1,200 m a.s.l. and a sub-alpine zone above. The area is prone to fires and as a result includes forests of lodgepole pine, white spruce and aspen trees at early successional stages. Like with the Klondike Plateau, south facing slopes support expanses of grasslands whereas north facing lower slopes typically hold white spruce – feathermoss forests (Smith et al. 2004). Wildlife is similar to that described in the Klondike Plateau ecoregion and the Tintina Trench extends into the northern part of the central Yukon plateau forming an important migratory route for multiple bird species.

3.2 ETHNOGRAPHY AND ETHNOHISTORY

The study area is located within the traditional territories of the Tr'ondëk Hwëch'in, who are Hän, and the Selkirk First Nation and First Nation of Na-Cho Nyäk Dun who are both Northern Tutchone. The following is a review of documented ethnography and ethnohistory for the study area with a focus on aspects of traditional land use that have the greatest influence on the archaeological record (i.e., material culture and seasonal rounds). Historic events that altered traditional land use activities are briefly mentioned here as well.

3.2.1 Hän Ethnographic Background and Ethnohistory

Tr'ondëk Hwëch'in (TH) are Hän speakers belonging to the Athapaskan language family. There are four Hän communities noted as living along the Yukon River and TH is one of these Hän communities (Dobrowolsky 2003:68). Territory of the TH extends from Peel River in the north to White River in the south and from Rae Creek in the east into Alaska to the west. The following is a review of TH traditional land use patterns and activities within the Hän territory and how the activities and locations of activities have changed over time.

Traditionally TH moved with the seasons and are noted as having a "mobile culture" (Dobrowolsky 2003:4). Very generally speaking TH traveled from locations on river banks in the



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spring/summer to the highlands and forests in the late fall/winter. In the spring groups would gather at various locations along the Yukon River to prepare for the upcoming fishing season (Osgood 1971; Crow and Obley 1981). One of the most important resources for TH is salmon (Mishler and Simeone 2004:53). Yukon River salmon runs in Tr'ondëk Hwëch'in traditional territory include chinook or spring (king) salmon in late June/July followed by chum salmon in August/September (Osgood 1971). Besides salmon TH also fished for a variety of other fish species including: whitefish, longnose sucker, northern pike, arctic grayling and burbot (Mishler and Simeone 2004:54, 58).

Basket traps, dip nets and weirs were mainly used for fishing and in the 19th century funnelshaped basket traps started to be used (Mishler and Simeone 2004:59; Dobrowolsky and Hammer 2001:7). These funnel-shaped basket traps were used in various locations; at the mouth of tributary streams, lakes, along the banks of the Yukon River in shallow eddies (Mishler and Simeone 2004:59). In the early 20th century TH began to use fish wheels which allowed them to expand the locations where they could fish (Mishler and Simeone 2004:59; Dobrowolsky, 2003:62). Other techniques for fishing include: gillnets, spears, a jig or small pole with barbless hooks (Mishler and Simeone 2004:62).

Tr'ochëk, located at the mouth of the Klondike River was an important fishing camp for the TH. The TH were displaced from Tr'ochëk (Mouth of Klondike and later Klondike City) to Dawson as a result of the Klondike gold rush. The TH stayed at Fort Herchmer (McLeod, personal communication, 2009), prior to the establishment of the settlement at Moosehide. A 160-acre parcel of land at Moosehide was later set aside for the local Tr'ondëk Hwëch'in; however this land grant was conditional to giving up all claim to the old village at Tr'ochëk (Porsild 1998:49). Various locations along the Yukon River served as fish camps as well and other locations noted for fish camps are locations near Eagle Creek (Mishler and Simeone 2004:60), Eight Mile, Twelve Mile, Forty Mile and Moosehide (Dobrowolsky 2003:62). Fish wheels are still used by the Hän to catch salmon; there are fish wheels and fish camps located all the way from Dawson City to Eagle Village (Mishler and Simeone 2004:60).

Fish would be dried, smoked, and stored in preparation for the coming winter. In the late summer and early fall berries would be gathered and stored for the preparation of the winter as well (Dobrowolsky 2003:64). Important berries included cranberry, gooseberry, blueberry, and raspberry while Labrador tea, Hedysarum root, wild celery, and wild onions were also harvested (Dobrowolsky and Hammer 2001; Mishler and Simeone 2004). Wolf Creek, Eight Mile and a hill behind Moosehide were noted as popular berry picking spots (Dobrowolsky 2003:64; Mishler and Simeone 2004:71).

The fall saw a dispersal of the group as food stores required additions or replenishment. The Tr'ondëk Hwëch'in moved into the highlands along tributaries of the Yukon River to hunt caribou, moose, and Dall sheep in late summer and fall (Osgood 1971). Richard Slobodin in the 1960s interviewed men and women living in Dawson City and they noted that after fishing season they would travel to side streams of the Yukon including: Coal Creek, Nation River or Tatonduk River



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where they would then travel into the Ogilvie Mountains for the winter. Eagle Creek and Last Chance Creek are some of the routes that the Hän took for traveling into the Ogilvie Mountains (Mishler and Simeone 2004:55-56).

Caribou were traditionally hunted with bow and arrow, snares, and wooden/stone fences with corral structures that can still be seen today in alpine landscapes. A few specific locations that have been noted for caribou fences are southwest of Tr'ochèk and in the mountains near Chicken, Alaska. Caribou fences have also said to have been located at Comet Creek, Eureka Creek, Pittsburgh Creek, Gold Creek, "Teddy's Fork" of American Creek (Mishler and Simeone 2004:65). Clear Creek, No Name Creek and Moosehide creek are also noted as good hunting locations or routes (Dobrowolsky 2003:64).

Moose and sheep were hunted with snares, deadfalls, or bow and arrow. Big game were also hunted from canoe with spears as the animals were crossing lakes or rivers. For example, the Fortymile caribou herd regularly crossed the Yukon River near its confluence with Fortymile River, which represented an important fall hunting event for Hän people (Hammer and Thomas 2006).

During the spring, canoes would be prepared for the upcoming fishing season; typical types were birch bark canoes, moose skin canoes (Dobrowolsky 2003:8-11). Rafts were used but Osgood (1971:81) notes that the more common squared form of the post-contact era was not a traditional design. Other forms of travel included snowshoes made of birch bark and caribou skin. Toboggans or sleds were used and later on the Hän adopted HBC style toboggans and started using dog teams (Dobrowolsky 2003:6).

Traditional Hän dwellings consisted of relatively large winter moss houses excavated 30-40 cm into the ground with pole frames (Mishler and Simeone 2004). Domed winter tents were also constructed of animal hide draped over willow or spruce poles that were then lined with brush and snow. Typical summer dwellings included moose hide brush tents and more temporary leantos. The most archaeologically visible remnants of these structures are the central stone hearths located within the dwellings, post holes, and any depressions resulting from initial excavation. Other structures associated with camps include food caches, fish drying racks, and frames for skin tanning and smoking. Stones heated in fires were used to boil water for cooking meat and are occasionally visible in archaeological sites as clusters of heat cracked cobbles.

The first fur traders to enter the area in the late 1840s were Hudson's Bay fur traders who accessed the area from the north and southeast. It is likely that the Hän had indirect contact with the Russian Traders (through trade goods) on the Alaskan coast as early as the mid-1700s. During this time more trading posts were established and companies such as the Hudson's Bay Company and the Alaska Commercial Company brought in new products to the Hän territory. These changes influenced the Hän economy and they shifted more to trapping and trading and less hunting and gathering (Dobrowolsky 2003:12). By the middle of the 19th century the Hän around Fort Yukon were established as traders (Osgood 1971:77).



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The first trading post near Hän territory was Fort Yukon established in 1847. Osgood notes that this influenced Hän material culture and therefore their culture overall (Osgood 1971:127-128). The first fort established in the traditional territory of the Tr'ondëk Hwëch'in was Fort Reliance. This fort located approximately 10 km downriver from the mouth of Klondike River was established by Jack McQuesten and Frank Banfield in 1874. This location became an important gathering spot and trading location for the TH. In 1883 Frederick Schwatka an American explorer traveled through Fort Reliance and noted the population in the area and at the "Indian Camp", Nuclaco or Noo-klak-o, across the river as around 150 people. McQuesten noted the normal population as being 75–80 people (Schwatka 1983:69; Dobrowolsky 2003:13).

The Hän traveled great distances for trading and traded with Tanana, Gwich'in, Southern Tutchone and Northern Tutchone (Dobrowolsky 2003:12). Various resources were traded, such as birch bark, hides and salmon as well as red ochre (Osgood 1971:71; Dobrowolsky 2003:12). The Hän traded these items for such things as dentalium shells, obsidian and native copper (Dobrowolsky 2003:12). Knives made from this copper, which were used for hunting and other purposes. The head of the White River was noted as being a good source for copper (Osgood 1971:79).

Trapping became an important activity for the TH during the late 19th Century. In the fall and winter, groups would travel to their trap lines. Sheep Creek (Tatonduk River) and up the Ogilvie River, Twelvemile Creek, Nation River are noted as spots for trapping as well as hunting (Mishler and Simeone 2004:73-74).

The Yukon River basin was active in the 1880s with trading posts and mining activity (Dobrowolsky, 2003:15). Also at this time various surveyors/explorers were traveling through TH traditional territory. In 1887 an expedition led by George Dawson, who was a geologist, aimed to gain information on unknown areas in the Yukon. The specific route to be mapped was to be from the Alaskan panhandle from the head of the Lynn Canal down the Yukon River to the 141st meridian. This expedition which was sponsored by the Canadian Government included William Ogilvie as a surveyor. Ogilvie recorded Hän communities in the area including Fort Reliance and Belle Isle (Eagle). He eventually became the Commissioner in the Yukon and is said to have had a great effect on the lives of the TH (Dobrowolsky 2003:15).

On September 1, 1896 Joseph Ladue began constructing the first cabin in the settlement he named Dawson City. Ladue was already in the process of staking the town site (160 acres) when gold was discovered on Rabbit Creek (a tributary of the Klondike River renamed Bonanza Creek) on August 17, 1896 which marked the beginning of the Klondike gold rush (Brand, 2002; Guest 1982:29). With the onset of the Klondike gold rush, the first sustained non-first Nation settlement in Dawson occurred (Skuce and Hogan 1992). The gold rush was an event that had a major impact on the TH way of life. Some of the factors that changed the landscape and some of the traditional activities of the TH include: changes in technology, placer mining, fur trading activities, commercial fisheries and canneries (Dobrowolsky 2003:61). It is important to note that traditional subsistence activities are still a part of the culture (Mishler and Simeone 2004:55).



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3.2.2 Northern Tutchone Ethnographic Background and Ethnohistory

The Selkirk First Nation (SFN) and First Nation of Na-Cho Nyäk Dun (NND) are Northern Tutchone and members of the Athapaskan language family. The primary political unit was a regional group made up of five to ten nuclear families sharing a common chief (dän co), although this group composition likely varied throughout the year (McClellan 1975).

Northern Tutchone people practiced a seasonal subsistence cycle that centered around summer fishing of salmon spawning runs, fall harvesting of moose and caribou, and fall berry harvesting (McClellan 1975). King salmon was caught, dried, smoked and berries picked. In September, four or five families would go hunting and bring back meat for everyone. Meat was smoked and the skins tanned. These major food resources were processed and cached in preparation for the long winter, when harvesting can be most difficult.

Small game and other fish were harvested throughout the year, with a focus on certain species at key times (e.g. grayling, whitefish and muskrat in spring, grouse in the summer and fall). River and creek valley served as travel routes and were travelled throughout the seasonal cycle, and people followed them to access the upland and alpine areas. Major travel and hunting routes are noted as the Stewart, Rackla, Nadaleen, Beaver and the Hart Rivers (Mayo Historical Society 1999:6).

Summer fishing camps were chosen for the availability of migrating salmon and good river access where fish traps and nets could be set. Settlement near these locations involved several families who used the same fishing location each year, often at the confluence of creeks and larger river (McClellan 1975). The Stewart River is a major salmon spawning river along with its tributary the McQuesten River. The mouth of McQuesten River is a major fishing camp with other important fishing camps being located along the Stewart River. Salmon is one of the key staple foods of the Northern Tutchone, and the centrality of this harvesting practice to the seasonal cycle has remained throughout the period of Euro-Canadian contact.

A variety of berries, roots and other plant foods were important resources. Roots such as Hedysarum roots and the inner bark of trees were harvested (McClellan 1975). The most common types of berries include low and high-bush cranberries, blueberries, raspberries, strawberries, and salmon berries. Roots were gathered in spring and berries throughout July, August and September. By late summer, people dispersed into smaller family groups to hunt game that could be dried for winter caches. Moose, caribou and sheep were all hunted at this time. Migratory birds were also harvested when the opportunity presented itself (McClellan 1975). Hunting sites have been located in the Wernecke Mountains and moose fences and caribou corrals have been noted here. The McKenzie Mountains near the Arctic River and Wind River were noted as sheep hunting areas (Bleiler, Burn and O'Donoghue 2006:85). Sheep are hunted in the alpine during mid-summer when weather conditions are favourable.

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Animals hunted during the fall would be dried and cached for winter, along with the summer salmon harvest. The food was generally dried or smoked on drying racks and cached near main dwellings (McClellan 1975). In winter people fished at Mayo Lake, Kathleen Lake and Ethel Lake for Whitefish or lingcod (Bleiler, Burn and O'Donoghue 2006:85-86). In the spring, people hunted and trapped mammals and grouse in the lowlands, netted pike, grayling, and sucker, trapped beaver, and hunted ducks in the wetlands (McClellan 1975).

The Northern Tutchone built conical or rectangular lean-tos with a spruce pole tripod framework, brush walls, and roofs of moss, bark or skin. These structures would often house several families sharing a central fireplace. The most archaeologically visible remains of dwellings are postholes and central hearths as the main foundations were not excavated. Near the main dwellings, meat and fish drying racks would be erected, as well as racks for boat frames and toboggans, frames for skin tanning and smoking, and small huts for use during spiritually important events. During the winter when groups dispersed, domed winter tents of caribou or moose hide were stretched over sapling frameworks and covered with moss, snow and/or ice for insulation. Camps generally consisting of an eating area, a fire pit, a drying cache, and some kind of dwelling (Bleiler, Burn and O'Donoghue 2006:87).

A wide variety of implements were used for hunting, fishing, and plant food gathering. Stone tools (projectile points, knives, scrapers, and flaking debris) are implements commonly recovered in archaeological contexts. In some cases these hunting/fishing implements were made from antler, bone and native copper, which are sometimes recovered at archaeological sites depending on preservation conditions. During historic times, many kinds of traps, snares, corrals and hunting blinds were used and still can be seen on the landscape today. Box and funnel traps were used in conjunction with weirs to catch salmon, trout, pike, and large whitefish. Dip nets, gill nets, leisters (pronged spears), hooks, gaffs, spears, and lines were also used to catch fish (McClellan 1981).

The Stewart River area was rarely written about until the discovery of gold in the region in 1883. Early prospectors of the Stewart River area included Poplin, McCoskey, Beach and Marks who received help from men who had been trapping and running trading posts in the area for years such as McQuesten, Harper, and Mayo (Mayo Historical Society 1990:22). In 1885, news of gold found on Stewart River spread quickly and attracted 75 men to work the river that summer. In 1886, McQuesten, Harper, and Mayo set up a post, Fort Nelson, at the mouth of the Stewart River to sell supplies. Mayo ran the store and soon, a small town of 32 cabins was established. The area was quite profitable and produced an estimated \$300,000 in gold between 1885 and 1886 but production declined quickly and in March of 1887, Fort Nelson was abandoned with the news of a gold strike near Fortymile. The store was packed up and relocated (Mayo Historical Society 1990:26). When it was discovered that, although the gold deposits at Fortymile were larger, they were much more difficult to mine, some miners returned to the Stewart River area. Fort Nelson saw a brief revival during the Klondike gold rush as it served as a resting point, wintering ground after freeze up, and a place to gather wood for riverboats. Another influx of

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miners occurred in the area in 1901 when men from Duncan Creek in the Mayo area discovered large gold placer nuggets (Bleiler et al. 2006:33).

By 1901, McQuesten Village (an abandoned supply post on McQuesten River) served as an annual meeting ground. In 1902, Frank Braine and Percival Nash established Lansing Post, at the confluence of the Stewart and Lansing Rivers and attracted/brought in First Nations trappers to settle neighbouring land and bring in furs. The post exchanged hands three times until it was eventually abandoned in 1940 (Mayo Historical Society 1990:212).

The town of Mayo, or Mayo Landing, was established in 1903 and attracted people from older settlements on McQuesten River (Mayo Historical Society 1990:9). On July 10, 1903, Jacob A. Davidson became the first man to find and stake a silver-lead ore claim in the area (Hell's Gate claim). He did not stay to mine it, however, and the claim lapsed until it was re-staked in 1913 by McWhorter, Alverson, Huffman, and Evans, which marks the beginning of the area's silver mining industry. More accessible roads and bridges were established from 1903 to 1917. Shortly after 1913, 59 tons of ore were stacked on the Mayo docks to be shipped to San Francisco for smelting (Mayo Historical Society 1990: 61). News of smelter returns of \$269 per ton caused an immediate stampede to the area which became known as the Silver King District, near Galena Creek, approximately 45 km north of Mayo. By 1915, the population of Mayo Landing was 234, with 80 First Nations residents living nearby at the Old Village (Bleiler et al. 2006:102).

In 1915, Julius Kendi and Rev. Frank Buck from the Anglican Church arrived to baptize and assist the NND people establish a town at a location 3.2 km below the village of Mayo, on the banks of the Stewart River. The "Old Village" was occupied for over 40 years but was abandoned after 1958. The village still has some standing cabins and associated buildings.

Many areas in the region were mined by companies and individuals during the early 20th century, the most notable of which include Keno City, Warnecke Camp, and Elsa Camp. Keno City was established in 1919 when John Kinman discovered galena above Lightning Creek: within three years cabins, hotels, roadhouses, and a post office were built. Keno Hill Limited operated the mine and in 1920 the population was estimated at just under 1000 people (Mayo Historical Society 1990:72). Towns, highways, roads and mining had an impact on many aspects of traditional subsistence.

3.3 POST CONTACT CULTURE HISTORY

The following post-contact history is more specific to the study area than the post-contact history noted in the ethnohistoric accounts described above.

With the discovery of gold in the 1880s and 1890s prospectors began to traverse the inland area around the Yukon, Klondike, White and Stewart Rivers following the waterways from one creek to the next (Yukon Archives 1898: H-696). Early prospectors tested the river gravels and bars of the Stewart and White Rivers and other tributaries of the Yukon River in the 1880s (McQuesten 1952).



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Fine gold was discovered in 1883 on Stewart River, which heightened interest in the surrounding area. By this time, most of the inland areas in the Klondike Plateau were unexplored by non-natives as Europeans tended to follow trails associated with waterways. The trails all originated from Dawson City and branched out to Klondike River, Eldorado Creek, and Bonanza Creek. From these entrance points, the trails extended as far east as Dominion Creek, south to Indian Creek, and running along the banks of almost every creek in the area (Yukon Archives 1898: H-696).

Many of the rivers and creeks within the study area or in the vicinity of the study area are associated with the Klondike Gold Rush and some of the areas are still mined today. Many of the creeks within the study area were prospected and staked during the Klondike Gold Rush in the late 19th and early 20th centuries. This includes Ballarat Creek, Thistle Creek, Blueberry Creek, Scroggie Creek, Barker Creek, Eureka Creek, Iron Creek, Henderson Creek, Mills Creek, Minton Creek and Black Hills Creek (Coutts 1980). Black Hills Creek in particular is noted as having "one of the earliest miner's names in the Territory" as it was named in 1883-1885 (Coutts 1980:40). It was prospected during this time but it wasn't until payable gold was found that the entire creek was staked in a matter of days during a stampede in July 1898 (Coutts 1980).

The Stewart River is also associated with the Klondike Gold Rush of the late 19th and early 20th centuries and its shorelines exhibit evidence of this rich past in the form of abandoned cabins, villages and outposts. The Overland Trail crosses the Stewart River and represents a 530 km travel corridor between the cities of Whitehorse and Dawson built in an effort to improve winter transportation conditions by taking advantage of frozen lakes and rivers. The trail was constructed in 1902 and employed a system of relay stations whereby roadhouses, stables and/or corrals were located every 30-40 km in order for travelers to exchange horses, stay overnight and/or take in a hot meal. The Overland Trail crossed the Stewart River where there are the remains of a log cabin (recently collapsed into the river) and a number of outbuildings. These buildings relate to a farm built in 1897 by Samuel Henry who had over 100 acres of hay fields in the area in order to supply fodder for the White Pass horses and to the horses mining in the goldfields. The property was used again for farming by a religious group in the 1970's (Yukon Government FPTR ID: 115O/02/002). Other historic sites within the study area that provide some information about historic land use in the study area are described below.

The Barker Creek cabin, is associated with placer mining operations that begun on Barker Creek in 1898. The site consists of the remains of a two-storey roadhouse and three other buildings. The roadhouse was used as part of a riverboat stop for river travel related to mining activities up Barker Creek (Yukon Government FPTR ID: 115O/02/004).

Stewart Island was the site of an HBC post established for miners, woodcutters and trappers working in the area. The post was established in 1886 and included a 40-acre government reserve and two 160-acre private reserves all adjoining one another. By 1900, approximately 30 people inhabited the island which included a roadhouse, a mining recorder's office, a telegraph office, barracks for the North-West Mounted Police (NWMP), a general store and a post office. Most of Stewart Island's townsite has eroded into the Yukon River.



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A historic cabin located on the south bank of the Stewart River, known as the McQuesten Village Cabin. McQuesten Village represents a traditional camp initially used by people from the Fort Selkirk area as part of their seasonal round that became a permanent village when gold was discovered up the McQuesten River in the late 19th century. A trading post and a NWMP station were located there from 1901 to 1906. After 1902, a winter trail passed through the village linking it with the city of Mayo. Across the river, on a point of land upstream from the mouth of the McQuesten River and overlooking the Stewart River is a First Nation gravesite dating previous to the Klondike Gold Rush.

3.4 PRECONTACT CULTURE HISTORY

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

3.4.1 Northern Cordilleran Tradition (>7,000 BP)

Increasing evidence for a pre-microblade technological tradition in the Yukon has led many researchers to adopt the Northern Cordilleran tradition as a viable construct in Yukon archaeology. Clark and Clark (1993) would classify any interior site older than 7,000–8,000 BP and lacking microblades as Northern Cordilleran. In many places this technological tradition existed contemporaneously with users of the microblade technology of the Little Arm Phase and this appears to have been the case in the southern Yukon (Hare 1995). Characteristic artifact forms included large bifaces, blades from informal cores, tools on blades (transverse notched burins, and burin/scrapper/notch combinations), and large, convex based and side notched or lobate stemmed Kamut points (Gotthardt 1990). To this list can be added elongate stone knives (Clark 1991) and bipoints (Hare 1995). The basal occupation of the Canyon site (JfVg-1), which is dated to $7,195 \pm 130$ BP, as well as Moose Lake (KaVn-2), which is dated to between $10,670 \pm 80$ BP and $10,130 \pm 50$ BP, have both been identified as Northern Cordilleran occupations (Hare 1995).

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

After about 8,000 BP a distinctive microblade technology spread to many areas of the Yukon and, while it was thought that this technology became obsolete after around 5,000 BP, reevaluations suggest that it was present much later (Hare 1995; Hare and Hammer 1997). Clark (1991) accounted for these later microblade assemblages by suggesting that they resulted from hybridization with subsequent cultures. This phase was characterized by microblades, tabular and wedge-shaped microcores, burins, geometric round-based points, and the absence of Taye Lake diagnostics (see below). There were no notched points, and large bifaces and other



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heavy implements were very rare or absent. Endsrapers were large and narrow, but not abundant and graters also occurred. Sites probably represented short stays by small groups and evidence suggested that subsistence resources were much like the early Taye Lake Phase, and included bison, caribou, moose, and birds.

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

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

3.4.4 Taye Lake Phase (5,000–1,250 BP)

Part of the widespread Northern Archaic Tradition, which Clark (1991) believes developed out of the Northern Cordilleran tradition, the Taye Lake Phase consists of all archaeological materials that are younger than 5,000 BP but predate the White River Ash. This phase was characterized by notched or lanceolate points with straight or slightly concave bases, an abundance of large bifaces, thick unifaces, a variety of endsrapers, and a developed bone industry. Ground stone was present but native copper was not in use. Burins were rare and graters were only found sporadically. End scrapers were profuse, of either rounded or angular form, possibly with multiple working edges. This was the only phase where endsrapers had been prepared for hafting. Workman suggested a division of this phase at 3,000–3,500 BP with late traits being tabular schist bifaces and stone wedges, and early traits being notched cobbles and shaped, beveled blades. He saw this division as coincidental with the onset of Neoglaciation, the resulting formation of proglacial lakes, and the probable disappearance of grasslands and bison. Large, rich sites were suggestive of seasonal return to favourable locations over a long period of time. Big game hunting was likely supplemented by trapping, fishing, and bird hunting. On technological grounds, Workman proposed a population replacement or absorption at the beginning of this phase to explain the many differences and very few similarities between it and the Little Arm Phase but, as Hare (1995: 104-105) noted, technological traditions are not the equivalent of cultural traditions so population movements are not necessary to account for the differences.

The Taye Lake Phase is somewhat arbitrarily separated from the Late Prehistoric Period by the White River Ash, a useful stratigraphic marker, and while Workman (1978) saw a great deal of cultural continuity across this horizon, he also felt that the ashfall had catastrophic effects on the people living in the southwest Yukon at the time of the eruption. Coincidental with the eruption,



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people were coping with other significant changes to the landscape; neoglacial ice had restricted access to the mountains and had caused flooding of the valleys, while at the same time salmon were prevented from reaching the interior, and bison, an important resource, may have disappeared (Workman 1973). As a result, he believed that the area was probably abandoned for a number of years and people dispersed either north or south, out of the path of the ash. This proposed exodus may have caused hostility with neighbouring groups, whose territory was restricted by the newcomers. Workman (1973, 1978, 1979) also believed that the migrations, which resulted in the arrival of Athapaskan speakers to the American Pacific Coast and Southwest, were triggered by this eruption. Moodie et al. (1992) offered corroborating evidence by recording oral traditions among Mackenzie Dene that tell of a large volcanic eruption, widespread ashfall, and of their coming to the Mackenzie Valley from over the western mountains. Otherwise, Workman's arguments for cultural upheaval as a result of the volcanic explosion remain circumstantial.

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

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

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

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3.5 PREVIOUS HERITAGE WORK

There have been a few studies within the vicinity of the study area that resulted in the discovery of heritage resources; below is a table of these projects followed by a brief summary of those that overlap with the proposed road corridor. Also included in this section is a table of all the previously recorded precontact heritage sites (n=14) within 5 km of the proposed access road corridor and historic heritage sites (n=52) located within 1 km of the proposed access road corridor.

Table 1 Past Archaeological Projects in the Study Area

Permit	Year	Researcher	Project title/description
90-11ASR	1990	Ruth Gotthardt	Archaeological impact assessment of Thistle/Ballarot Road
91-13ASR	1991	Michael Forsman	Archaeological impact assessment of Brewer/Barker Road
05-20ASR	2005	Christian Thomas	Archaeological survey of Yukon River from Dawson upstream to Coffee Creek
09-13ASR	2009	Ty Heffner	Preliminary Field Reconnaissance of White Gold Project for Underworld Resources
10-22ASR	2010	Ty Heffner	Heritage Resource Overview Assessment and Preliminary Field Reconnaissance of White Gold Project for Kinross
10-23ASR	2010	Ty Heffner	Heritage Resource Overview Assessment and Preliminary Field Reconnaissance of Coffee Gold Project for Kaminak
Non-permit	2011	Todd Kristensen	Heritage Resource Overview Assessment of White Gold Claims for Taku Gold
11-03ASR	2011	Ty Heffner	Heritage Resource Impact Assessment of the Coffee Cold Project for Kaminak
11-17ASR	2011	Ty Heffner	Heritage inventory of lower Stewart River
13-08ASR	2013	Ty Heffner	Heritage resources inventory of the Klondike Plateau and Yukon Plateau North

Harrington and Morlan (1992) recorded several archaeological and paleontological sites in the gold fields surrounding the Klondike Plateau immediately east of the Yukon River in 1973, 1975, 1979, and 1988. Precontact finds included stone tools, a lithic scatter on the Yukon River, and modified bone along with the remains from mammoth, bison, Yukon wild ass, American lion, caribou, and muskox. Also found were several historic roadhouses built for earlier prospectors and miners from approximately 1898 to 1902, barns and cabins associated with the Overland Trail/early settlement at Readford, and stations and buildings associated with the Klondike Mines Railway.

An informal survey conducted in 1994 under Permit 94-13ASR led to the discovery of precontact heritage site near Donahue Creek (Gotthardt, personal communication, 2009). Remains of a



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hearth feature containing burned bone were identified in a single shovel test excavated at the site. An additional survey resulted in the identification of an isolated precontact artifact discovered on a bedrock ridge near Thistle Mountain under Permit 90-11ASR (Gotthardt and Hare 1990).

In 2009 a one day aerial survey of the White Gold claim area was conducted on June 14, 2009 by Jody Beaumont of Cirque Consulting + Communications, Bill Kendrick of Tr'ondëk Hwëch'in, and Al Doherty of Underworld Resources (Beaumont 2009). A HROA followed by a PFR by Matrix Research Ltd. was conducted on the Underworld White Gold claim area under Permit 09-13ASR (Heffner 2010). Thirteen precontact sites and two recent historic sites were recorded.

In 2010 an HROA and PFR were conducted by Matrix Research Ltd. under Permit 10-22ASR for Kinross Gold Corporation in claim areas north and south of Stewart River and east of the Yukon River. The survey resulted in the identification of 12 previously unrecorded sites including three precontact sites, four historic sites, and five sites of undetermined classification (Kristensen and Heffner, 2011a).

An HROA and a PFR were also conducted by Matrix Research Ltd. in 2010 for Kaminak Gold Corporation on the Coffee Gold Project under Permit 10-23ASR. This survey resulted in the identification of three precontact sites, one historic site, and one post-contact site (Kristensen and Heffner 2011b). Matrix Research Ltd. returned to the area in 2011, under Permit 11-03ASR, to assess the sites identified in 2010. During the 2011 survey of the Coffee Gold Project three precontact sites and one historic site were recorded (Kristensen and Heffner, 2012).

An HROA was conducted in 2011 for the Taku Gold Corporation claim areas in the White Gold District, north of the Stewart River and east of the Yukon River. The recommendation of the report was that an HRIA be conducted on areas with high heritage potential prior to development (Kristensen, 2011).

Also in 2011 Matrix Research Ltd. conducted a Heritage Resource Inventory along the Stewart River for the TH under Permit 11-17ASR (MacKenzie and Heffner, 2012). Thirteen precontact heritage sites and one post-contact heritage site were identified by Matrix Research Ltd. during this study. One site, identified during this study is located within the proposed road corridor, one is located to the southeast of the study area and another is located to the east of the study area.

In 2013 Matrix Research Ltd. conducted an archaeological inventory of the Klondike Plateau and Yukon Plateau North as a component of a larger GIS based archaeological potential modeling project under Permit 13-08ASR (Heffner et al. 2014). The modelling project had three major components: 1) traditional land use research, 2) archaeological inventory and field data gathering, and 3) archaeological potential modelling. 126 heritage sites were identified during component two of this study; one heritage site located during the study is located to the west of

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Study Area
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the study area. The archaeological potential model created under the project was consulted during this study.

Table 2 Previously Recorded Heritage Sites within Five km of Proposed Road

Borden Number	Site Type	NTS Map Sheet	Permit Number
KfVj-3	Precontact, cultural material, subsurface, lithics	115 J/14	11-03ASR
KfVj-5/Coffee Creek Graves	Indigenous historic, burial, grave (fence, picket), gravehouse	115 J/14	14-1205-20ASR
KgVj-1	Precontact, cultural material, lithic scatter	115 O/03	90-11ASR
KhVi-1	Precontact, cultural material, subsurface, lithics	115O/7	11-17ASR
KhVi-2	Precontact, cultural material, subsurface, lithics, bone	115 O/02	11-17ASR
KhVi-3	Precontact, cultural material, subsurface, lithics	115 O/02	11-17ASR
KiVi-1	Cultural material, surface and subsurface, lithics and faunal	115 O/07	13-08ASR
KiVj-1	Precontact, cultural material, subsurface, lithics	115 O/06	10-22ASR
KiVj-4	Precontact, cultural materials, surface, lithics	115 O/06	10-22ASR
KjVh-1	Precontact, cultural material, subsurface, lithics	115 O/10	13-08ASR
KjVi-1	Precontact, cultural material, subsurface, lithics and faunal	115 O/10	13-08ASR
KjVi-2	Precontact, cultural material, subsurface, lithics	115 O/10	13-08ASR
KjVi-3	Precontact, cultural material, subsurface, lithics	115 O/10	13-08ASR
KjVi-4	Precontact, cultural material, subsurface, lithics	115 O/10	13-08ASR

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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Table 3 Previously Recorded Historic Sites within One km of Proposed Road

YHSI	Site Name	Description	Function/ Theme	Current Use
115J/14/001	Coffee Creek Telegraph Office	Telegraph Office	Economic/Communication/Wire/Telegraph	Abandoned
115J/15/001	Ballarat Creek Cabin 1	Single storey log cabin	Economic/Industrial/Mining/Trapping	Abandoned
115J/15/002	Ballarat Creek Cabin 2	Single storey log building	Economic/Industrial/Mining/Trapping	Abandoned
115O/02/002	Maisie May Cabin	Cabin	Primary/Farming	Abandoned
115O/02/003	Maisie May Barn	Barn	Primary/Farming; Secondary Support	Abandoned
115O/02/004	Barker Creek Building	Two storey roadhouse and 3 outbuildings	Mining/Gold; Building/Functional; Services	Abandoned
115O/07/010	Rosa Gulch	Mining Cabin	Mining/Gold; Functional/Housing; Material/Log	Demolished
115O/07/011	Rosa Gulch Cabin	Cabin	Primary/Mining/Gold; Buildings/Functional/Housing	Abandoned
115O/07/012	Paydirt Holdings Camp	Machinery at modern mining camp	Mining/Gold; Industrial/Technology	Abandoned
115O/07/013	Black Hills Post Office	Post office building	Mining/Gold/Residence	N/A
115O/07/014	Elevated flume and boiler house	Elevated flume and boiler house. Site is mined now.	Mining/Gold	Site is mined now
115O/07/015	McCrimmon Creek Cabins	Placer mine cabins	Mining/Gold/Residence	Abandoned
115O/07/016	Overland Trail Cabin	Cabin	Services/Accommodation; Land/Road; Functional/Housing	N/A
115O/07/017	Kernine Creek Cabin	Cabin	Mining/Gold; Functional/Housing	N/A
115O/07/018	Black Hills Creek Boiler House	Boiler House	Mining/Gold; Functional/Secondary support	N/A
115O/07/019	Black Hills Log Cabin	Cabin	Mining/Gold; Functional/Housing	N/A

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Study Area
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YHSI	Site Name	Description	Function/ Theme	Current Use
115O/10/018	Granville West	Residence	Mining/Gold; Functional/Housing; Functional/Secondary Support	Abandoned; some seasonal residential use
115O/10/019	Km. 68.7 Sulphur Cabin 1	Cabin	Settlement and Community Development/Buildings/Functional type/Housing Economic/Industrial/primary/Mining/Gold	Abandoned
115O/10/045	Australia-Sulphur Ditch Dominion Syphon Discharge	Syphon discharge	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/046	Australia-Sulphur Ditch Pumphouse	Pumphouse and associated buildings including shower house	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/047	Dredge 6	Dredge	Mining/Gold; Secondary/Technology	Abandoned
115O/10/052	Eureka Creek No. 4 Cabin	Cabin	Mining/Gold; Primary/Farming; Functional/Housing	Abandoned
115O/10/053	Eureka Creek No. 3 Cabin	Cabin	Mining/Gold; Functional/Housing	Abandoned
115O/10/054	Eureka Creek No. 2 Cabin	Cabin	Mining/Gold; Functional/Housing	Abandoned
115O/10/055	Eureka Creek No. 1 Cabin	Cabin	Mining/Gold; Functional Type/Housing; Design/Stylized; Material/Log	Abandoned
115O/10/061	Childes Gulch Cabin	Log cabin	Mining/Gold/Residence	Abandoned
115O/10/062	Upper Black Hills Creek Cabin	Cabin	Mining/Gold/Residence	Abandoned
115O/10/082	Granville West: Metal Garage and Shed	Garage and Shed	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/083	Granville West: Log Cabin B-20	Cabin and outhouse	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/084	Granville West: Boilers	Boiler	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/085	Granville West: Freighting Wagon Box	Wagon	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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YHSI	Site Name	Description	Function/ Theme	Current Use
115O/10/086	Granville West: Log Cabin B-18	Cabin	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/087	Granville West: Log Cabin and Greenhouse	Cabin and greenhouse	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/088	Granville West: Metal Shed B-15	Shed and outhouse	Mining/Gold; Buildings/Functional/Secondary Support	Shed is used as storage, B-14 is being used and B-13 is abandoned
115O/10/089	Granville West: Superintendent House B-12	Residence	Mining/Gold; Functional/Housing/Material/Frame; Community Development/Patterns	Seasonal
115O/10/090	Granville West: Log Cabin B-10	Residence	Mining/Gold; Functional/Housing/Material/Frame; Community Development/Patterns	Used seasonally for trapping
115O/10/091	Granville West: Burned Foundation	Residence	Mining/Gold; Functional/Housing/Material/Frame; Community Development/Patterns	Abandoned
115O/10/092	Granville West: Metal Garage	Garage	Mining/Gold; Functional/Housing/Material/Frame; Community Development/Patterns	Abandoned
115O/10/093	Granville West: Metal Shed B-7	Shed, garage	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/094	Granville West: Meat Shed B-5	Meat shed and outhouse	Mining/Gold; Buildings/Functional/Secondary Support	N/A
115O/10/095	Granville West Transformer House B-4	Transformer House	Mining/Gold; Buildings/Functional/Power	Storage
115O/10/096	Granville West: Log Cabin B-3	Residence	Mining/Gold; Buildings/Functional/Secondary Support	Seasonal dwelling - trap line
115O/10/097	Granville West: Foundation F-2 And F-3	Workshop	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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YHSI	Site Name	Description	Function/ Theme	Current Use
115O/10/098	Granville West: Collapsed Building B-2	Unknown	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/099	Granville West: Latrines B-1	Latrine	Mining/Gold; Buildings/Functional/Secondary Support	Abandoned
115O/10/100	Granville West: Outhouse	Outhouse	Settlement and Community Development/Buildings/Functional type/Secondary/Support; Economic/Industrial/Primary/Mining/Gold	Outhouse
115O/10/101	Granville West: Outhouse B-19	Outhouse	Settlement and Community Development/Buildings/Functional type/Secondary/Support; Economic/Industrial/Primary/Mining/Gold	Abandoned
115O/10/105	Km. 68.7 Sulphur Cabin	Residence	Settlement and Community Development/Buildings/Functional type/Housing; Economic/Industrial/primary/Mining/Gold	Abandoned
115O/10/106	Km. 68.7 Sulphur Cabin 3	Housing	Settlement and Community Development/Buildings/Functional type/Housing; Economic/Industrial/primary/Mining/Gold	Abandoned
115O/10/107	Australia-Sulphur Ditch House	Residence	Settlement and Community Development/Buildings/Functional type/Housing; Economic/Industrial/primary/Mining/Gold	Hunting Camp
115O/10/108	Dredge: Yukon Gold #4	Dredge	Economic/Industrial/Primary/Mining/Gold	Abandoned
115O/10/119	Australia-Sulphur Ditch Diversion 2	Diversion for Water	Primary/Mining/Gold; Industrial/Secondary/Technology; Transportation/Water/Overland	Abandoned

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Methods
March 21, 2017

4.0 METHODS

The following section describes the methods used for the HROA. Background information was combined with aerial and previous ground observations of similar areas to produce a preliminary assessment of heritage resources potential in the study area. The results of the HROA are presented in Section 5.0.

4.1 HERITAGE RESOURCES OVERVIEW ASSESSMENT

All available maps, digital elevation models, satellite imagery, air photographs, ethnographies, histories, and archaeological reports for the study area were examined. Criteria used to determine potential for heritage resources included: proximity to streams and water bodies, known heritage sites, known Aboriginal or historic trails, topography, vegetation cover, and presence of fish and wildlife habitat as outlined in the Wildlife Key Area maps produced by the Yukon Government Department of Environment. A GIS based archaeological potential model (Heffner et al. 2014) was also consulted during this process.

4.2 LIMITATIONS OF THE HROA

The criteria used to determine heritage resources potential during this assessment was derived from previously recorded sites and historic features near the study area and from previous experience in comparable terrain. Our current understanding of past settlement patterns and land use of the study area is limited by the lack of detailed ethnographic data, the scarcity of precontact heritage studies and recorded sites in the area, and the lack of detailed information on environmental and geomorphological changes throughout the glacial and post-glacial periods.

When viewing the HROA results it is important to note that low potential does not mean *no* potential. It is possible for heritage sites to be located outside of areas identified as having elevated heritage resources potential. To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation and Goldcorp Inc. inform their personnel and contractors that, in the event heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases, the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon and the appropriate First Nation(s) must be contacted immediately with information on the heritage remains and nature of the disturbance.

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

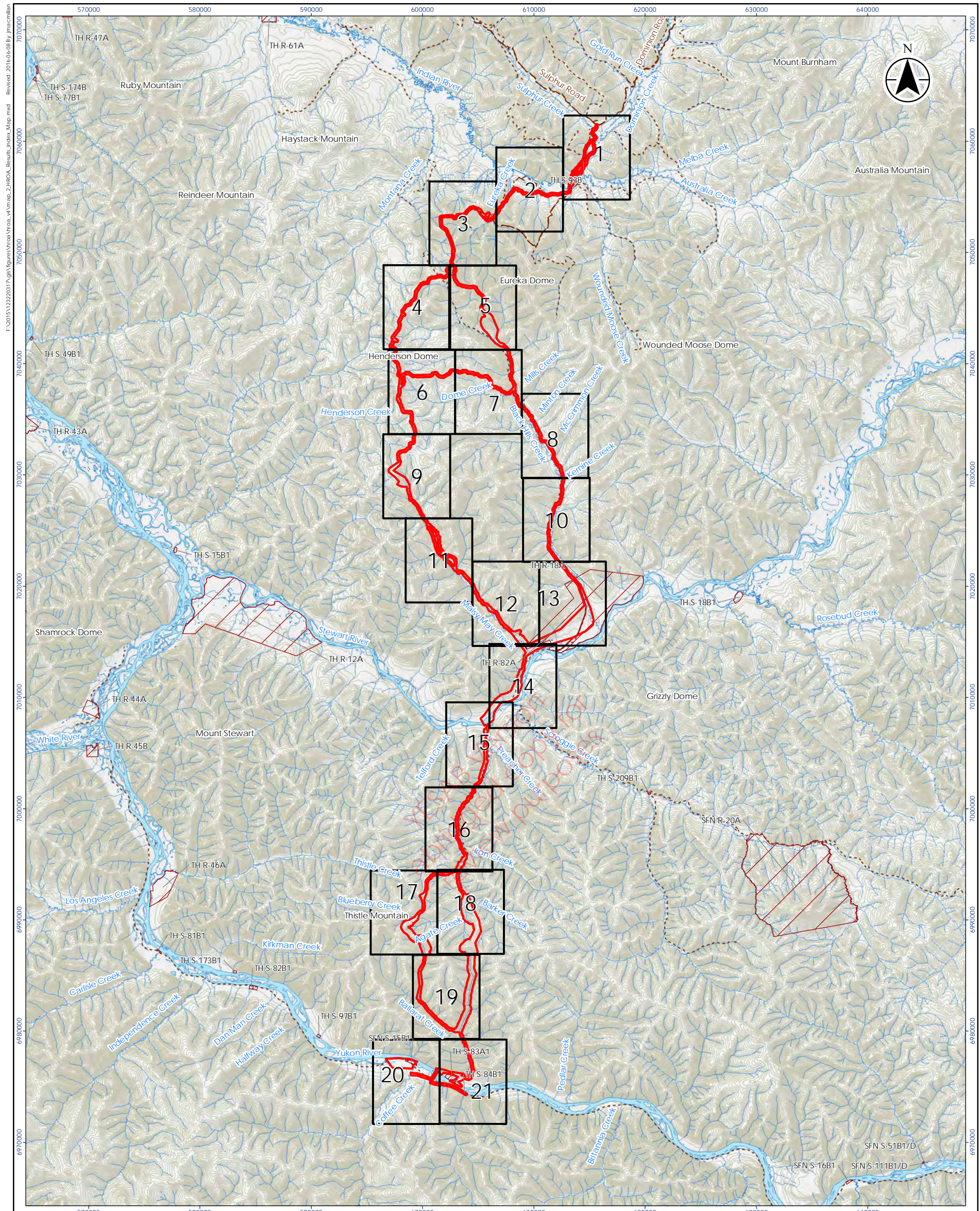
Results
March 21, 2017

5.0 RESULTS

The land base in the study area has been classified into zones of elevated heritage potential. It is important to note that the classification scheme is a predictive tool and that low potential does not mean no potential as it is possible for heritage resources to be encountered anywhere in the study area. Zones of elevated heritage potential are portrayed as polygons on Maps 2.1–2.21. GIS shapefiles are provided on the enclosed disc of the printed version of the report so that these polygons can be overlaid onto development planning maps.

The proposed development area includes crossings at two major rivers, the Yukon and Stewart Rivers as well as a number of creeks including Black Hills Creek, Maisy May Creek, Barker Creek, Thistle Creek, Ballarat Creek, Agate Creek, Iron Creek, McCrimmon Creek, Minton Creek, Mills Creek, Dome Creek, Henderson Creek, Eureka Creek, Sulphur Creek, Dominion Creek and Preacher Creek as well as multiple unnamed lakes, streams and seasonal drainages. It also includes areas of low-lying topography, and low, rounded hills. The HROA results are tailored to this varied topography and the range of potential pre- and post-contact human activities possible within it. Section 6.0 discusses general patterns regarding the assignment of heritage resources potential and provides recommendations.

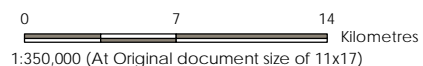
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- Legend**
- 30 m Contour
 - - - Secondary Road
 - · - · - Trail
 - Watercourse
 - Waterbody
 - Waterbody, Intermittent
 - ▨ First Nation Settlement Land
 - ▭ Proposed Road Corridor

Notes
 1. Coordinate System: NAD 1983 UTM Zone 7N
 2. Base Data Source: Government of Canada

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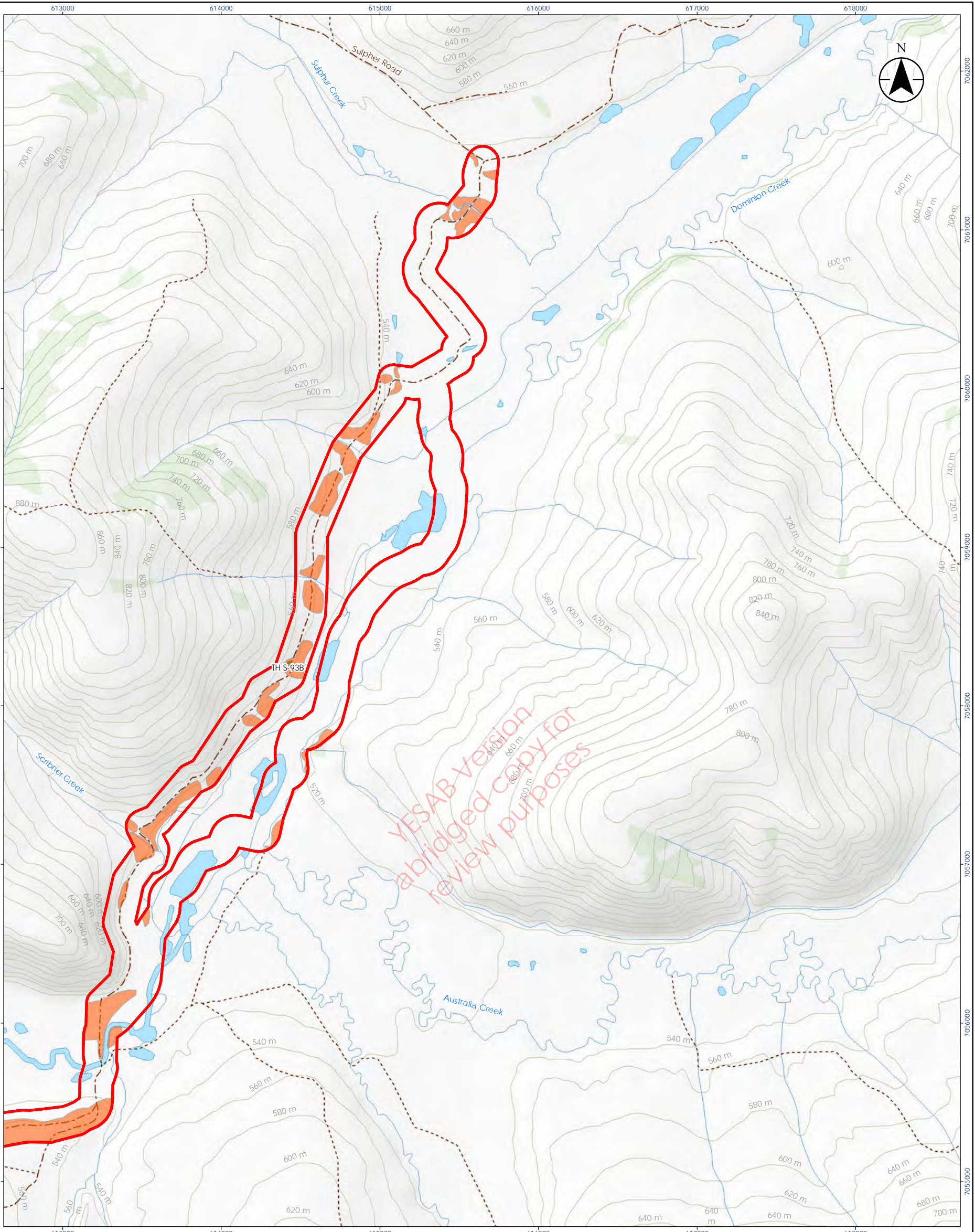


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 NTS Map Sheets: 115 J/14, 15
 115 O/02, 03, 06, 07, 10, 11
 Prepared by J. MacMillan on 2016-03-01
 Technical Review by T. Helfner on 2016-03-02

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 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.: 2.0
 Title:

HROA Results Index Map



- Legend**
- 30 m Contour
 - Trail
 - Secondary Road
 - Watercourse
 - Waterbody
 - Forested Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor

0 0.5 1 Kilometres
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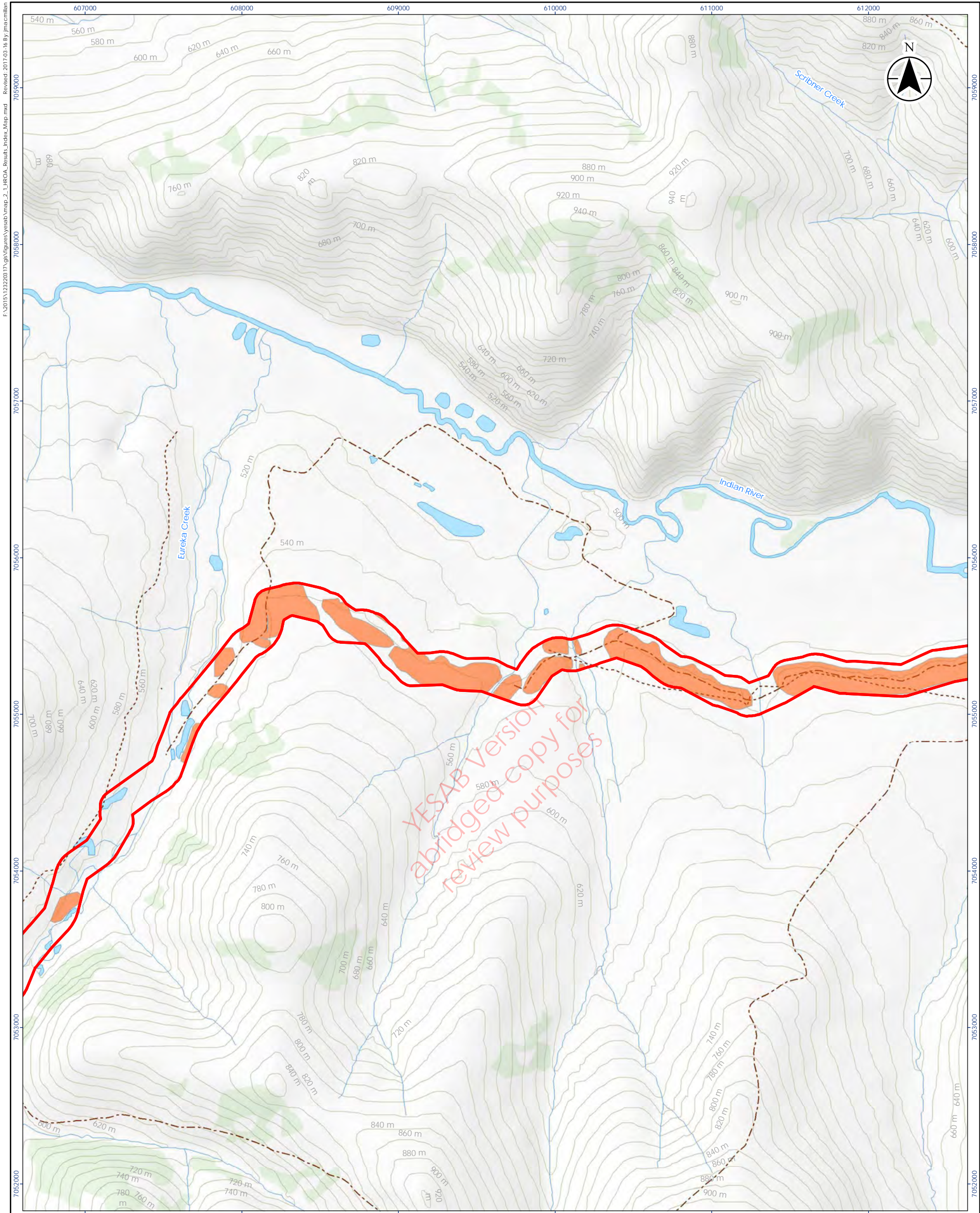
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HROA Results Map



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Legend

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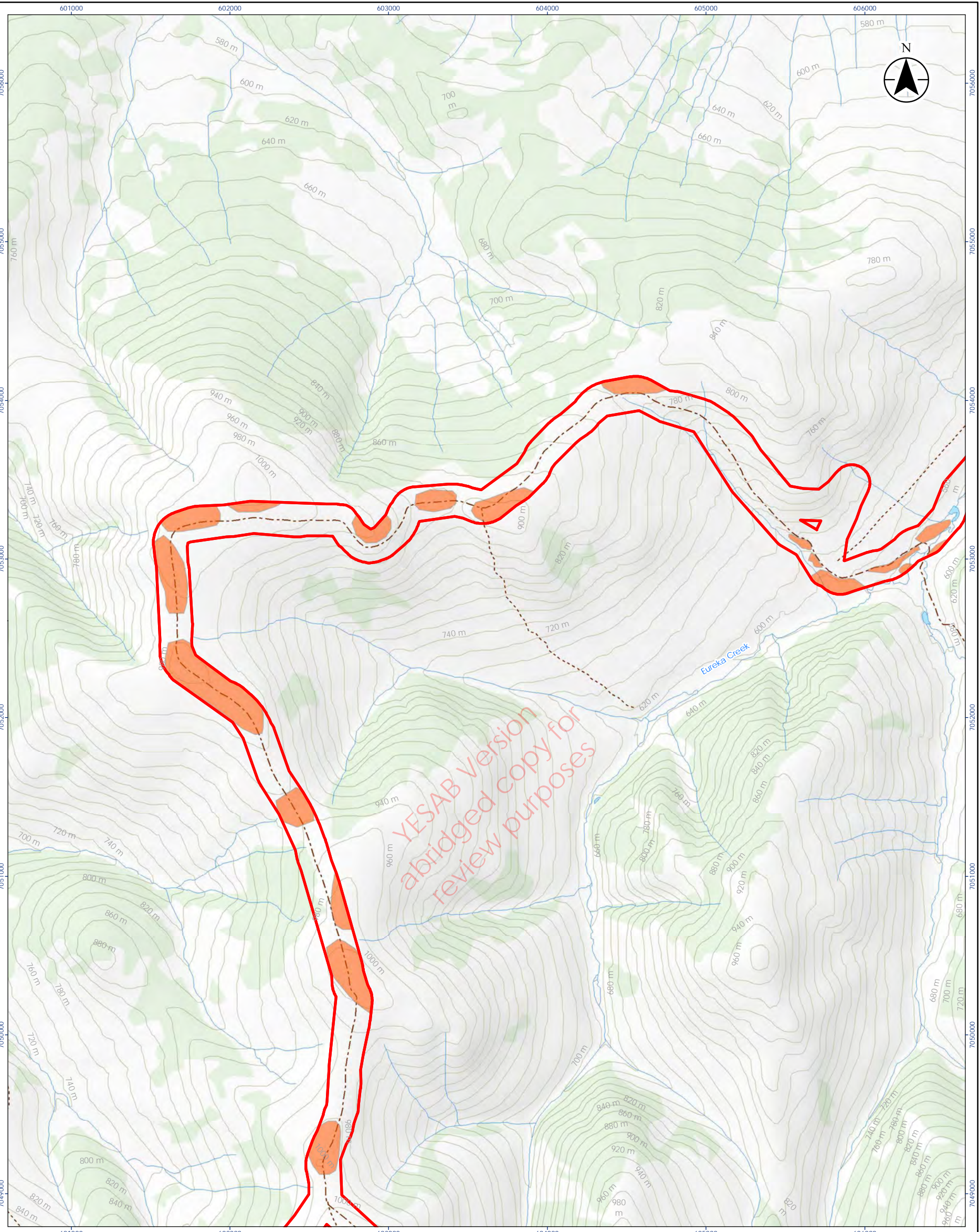


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Figure No.
2.2
Title

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Legend

- 30 m Contour
- Trail
- Secondary Road
- Watercourse
- Waterbody
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

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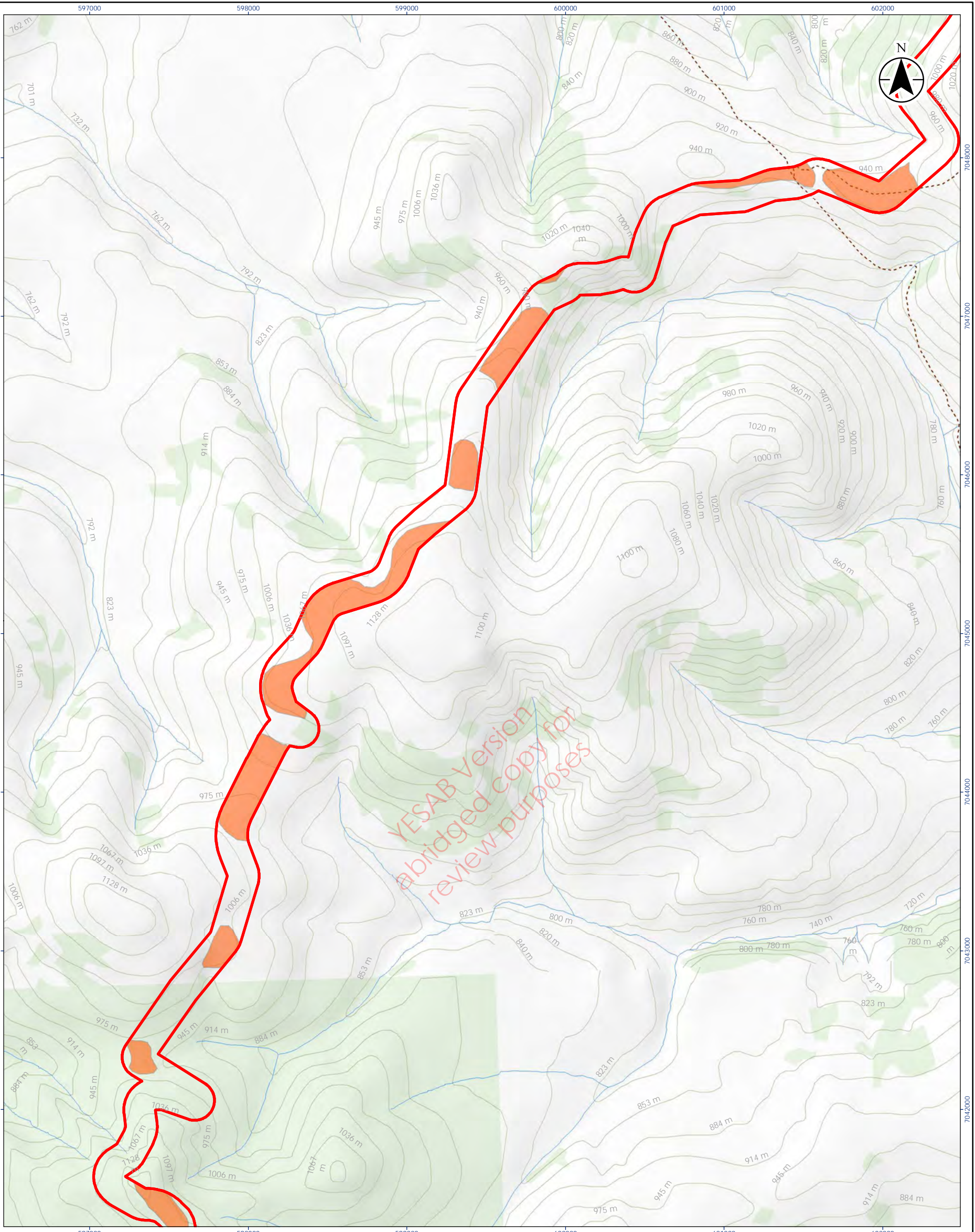
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2.3
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- Legend**
- 30 m Contour
 - Trail
 - Watercourse
 - Forested Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor

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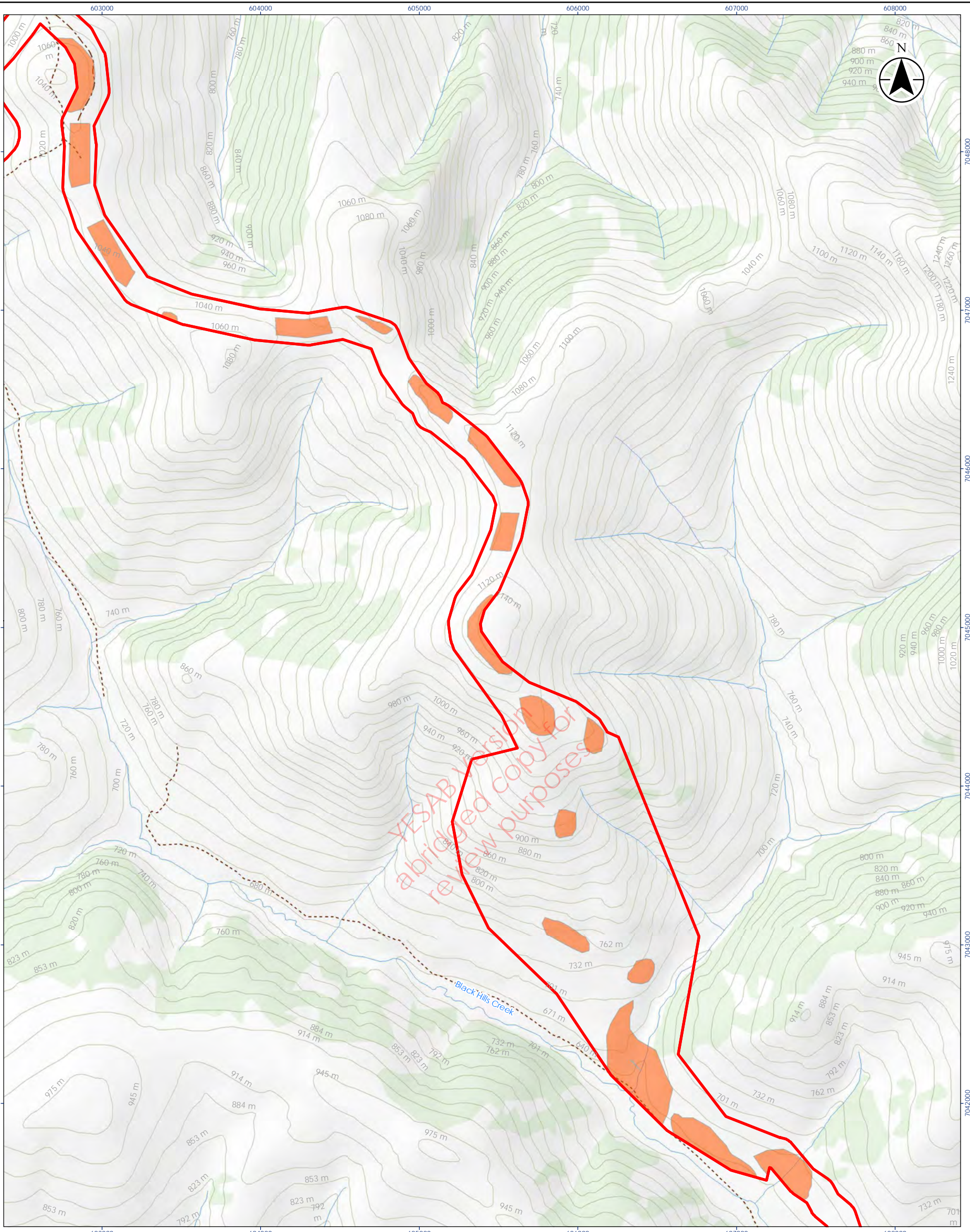
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HROA Results Map



- Legend**
- 30 m Contour
 - Trail
 - Secondary Road
 - Watercourse
 - Forested Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor

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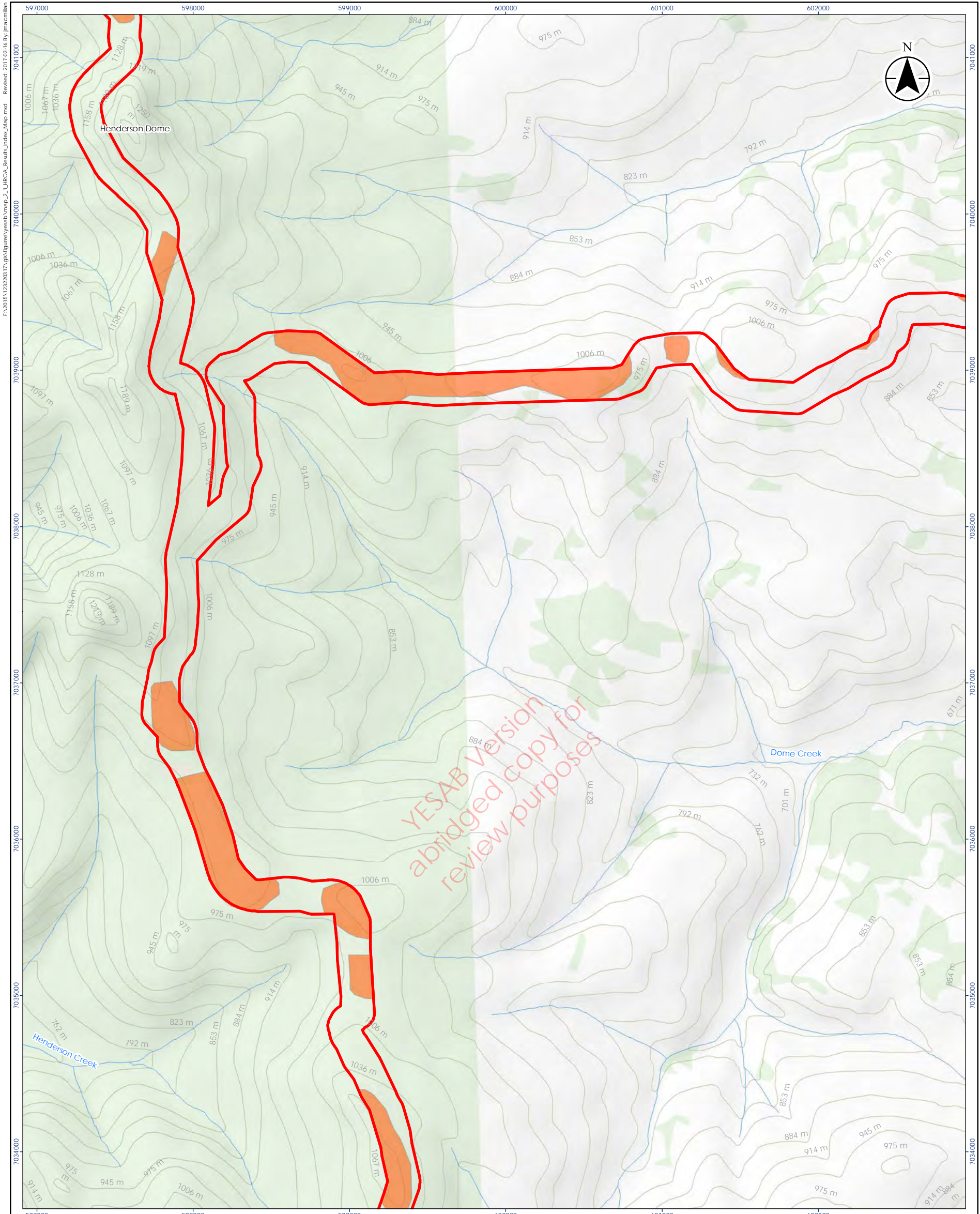
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Figure No.
2.5
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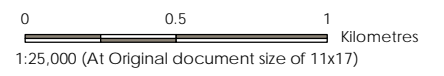
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HROA Results Map



Legend

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- Watercourse
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor



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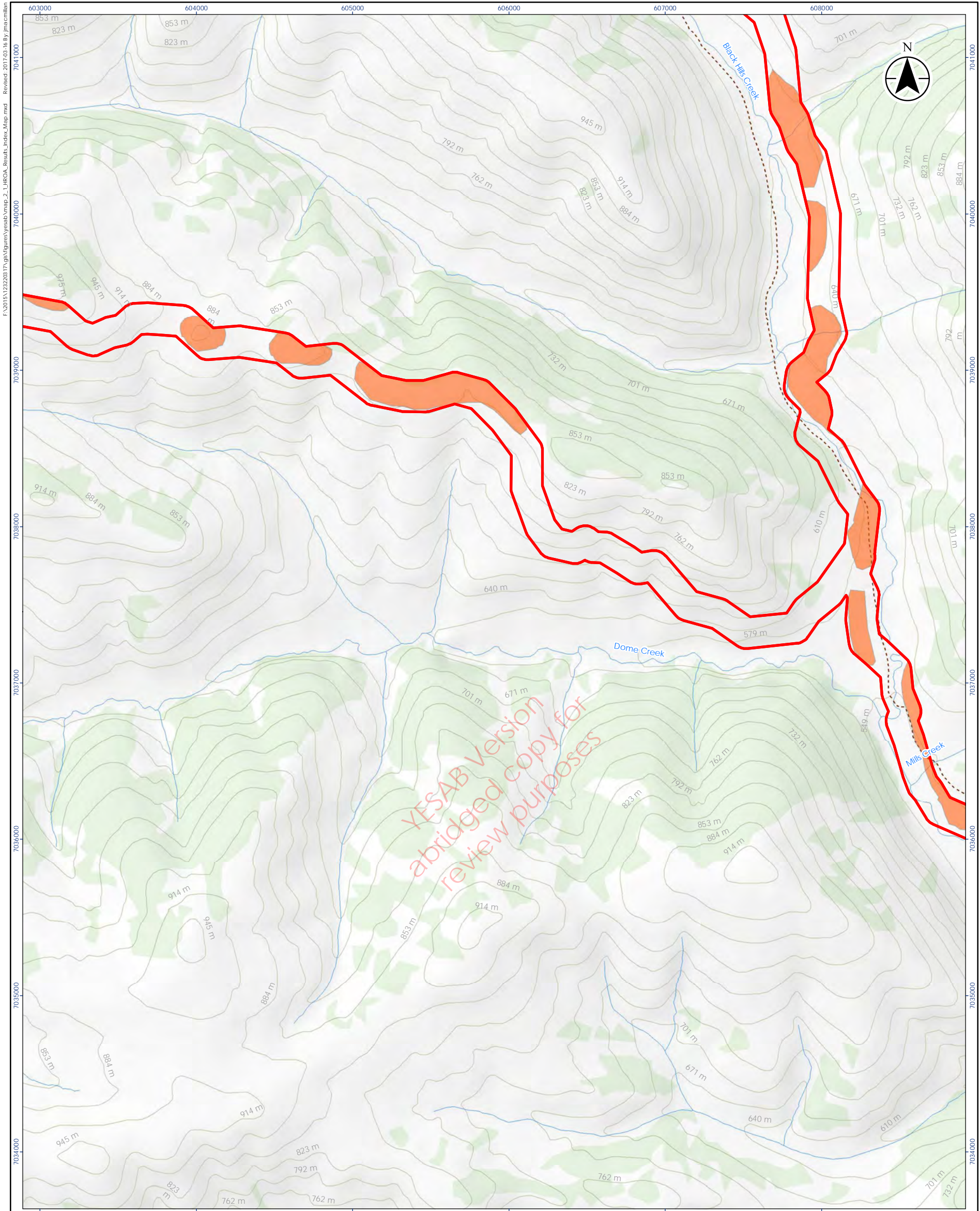
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HROA Results Map

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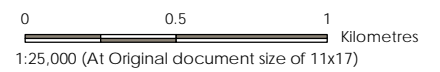
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- 30 m Contour
- Trail
- Watercourse
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

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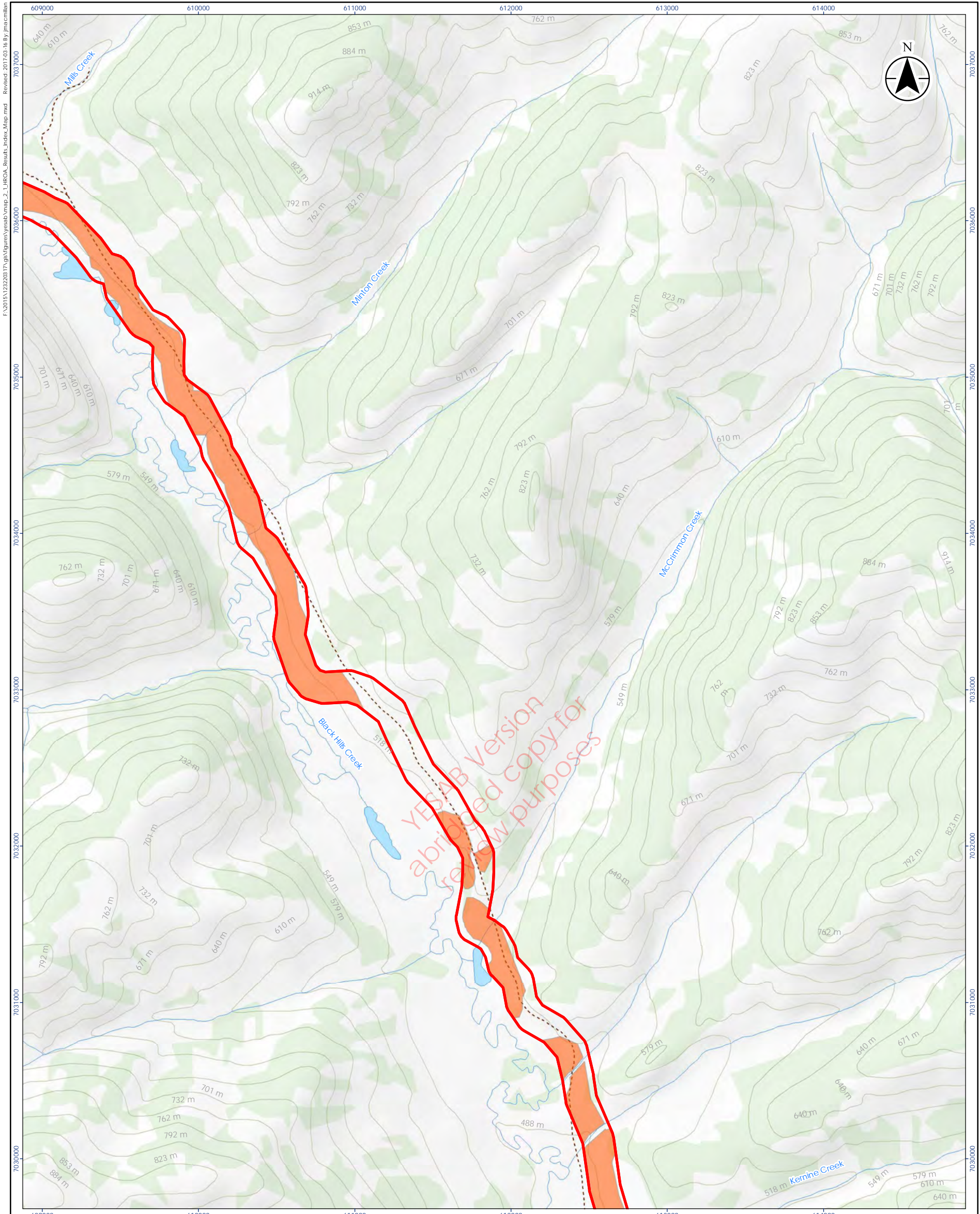
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 Heritage Resources Overview Assessment
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Figure No.
 2.7

Title

HROA Results Map

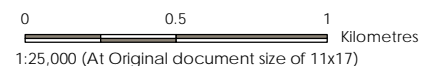


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Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Forested Area
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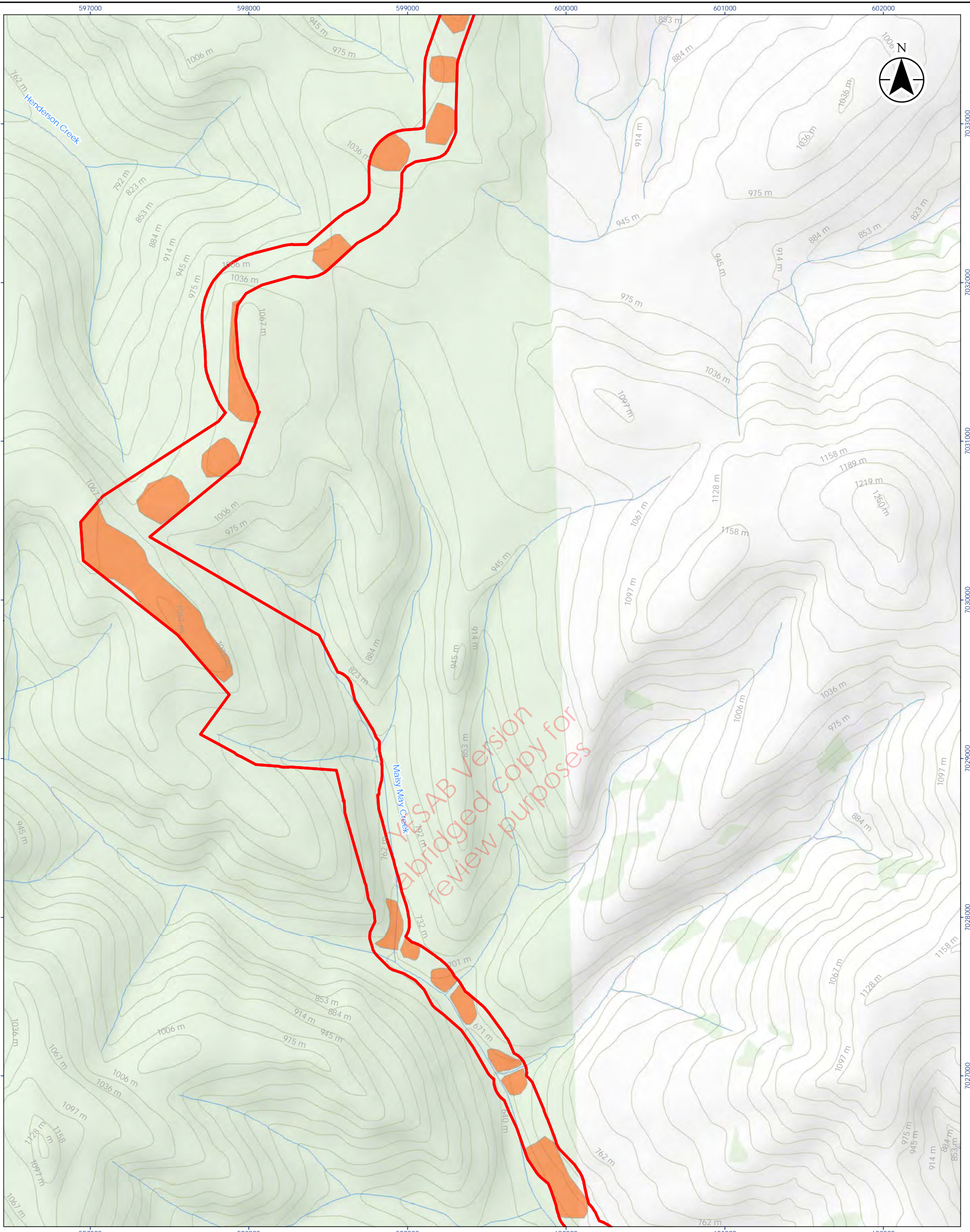


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 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
 2.8

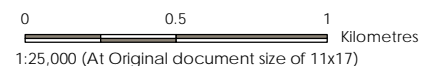
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115 J/14, 15	Updated by J. MacMillan on 2016-02-03
115 O/02, 03, 06, 07, 10, 11	Technical Review by T. Heffner on 2016-02-03

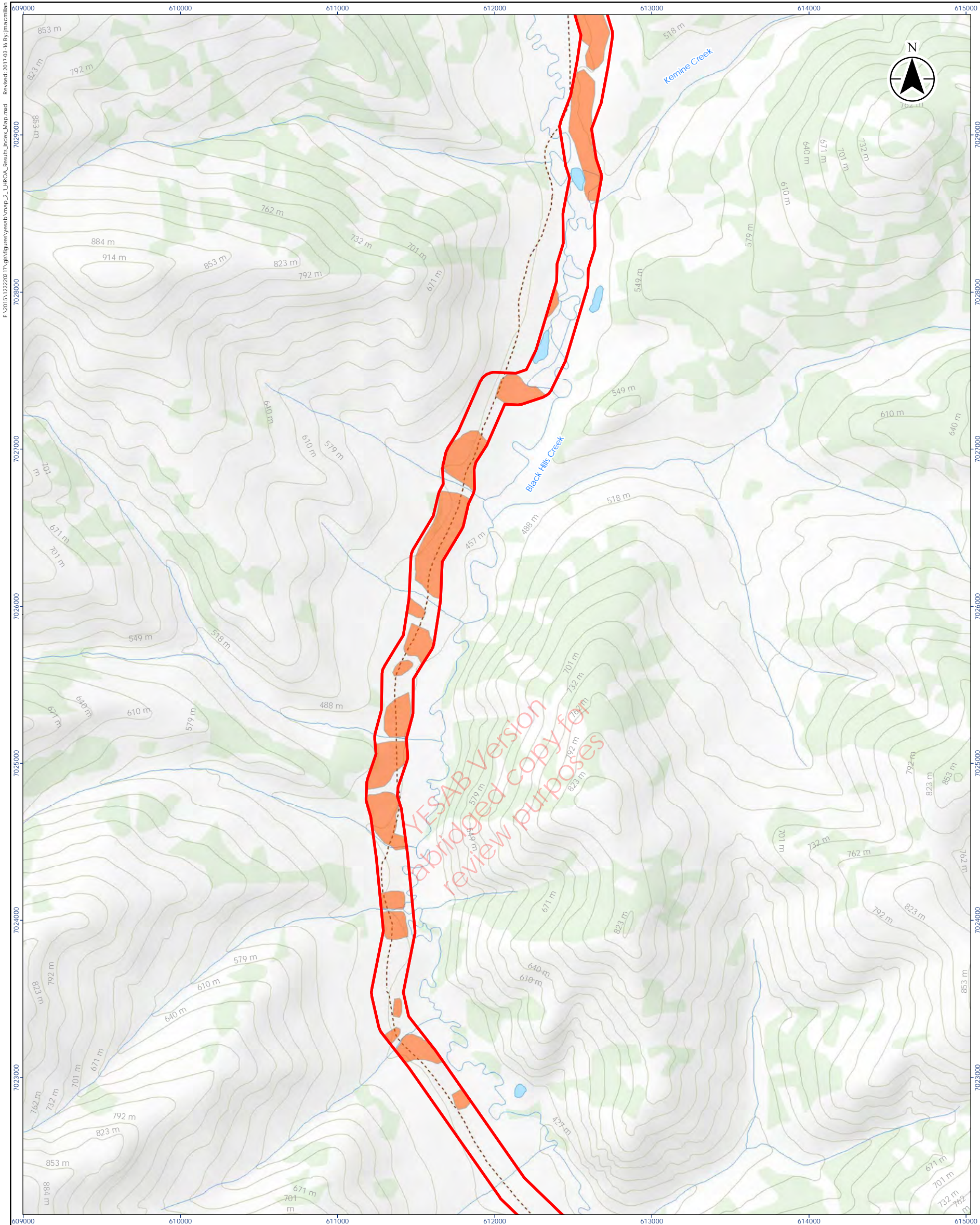
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Proposed Access Road

Figure No.
2.9
Title

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HROA Results Map



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Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes
 1. Coordinate System: NAD 1983 UTM Zone 7N
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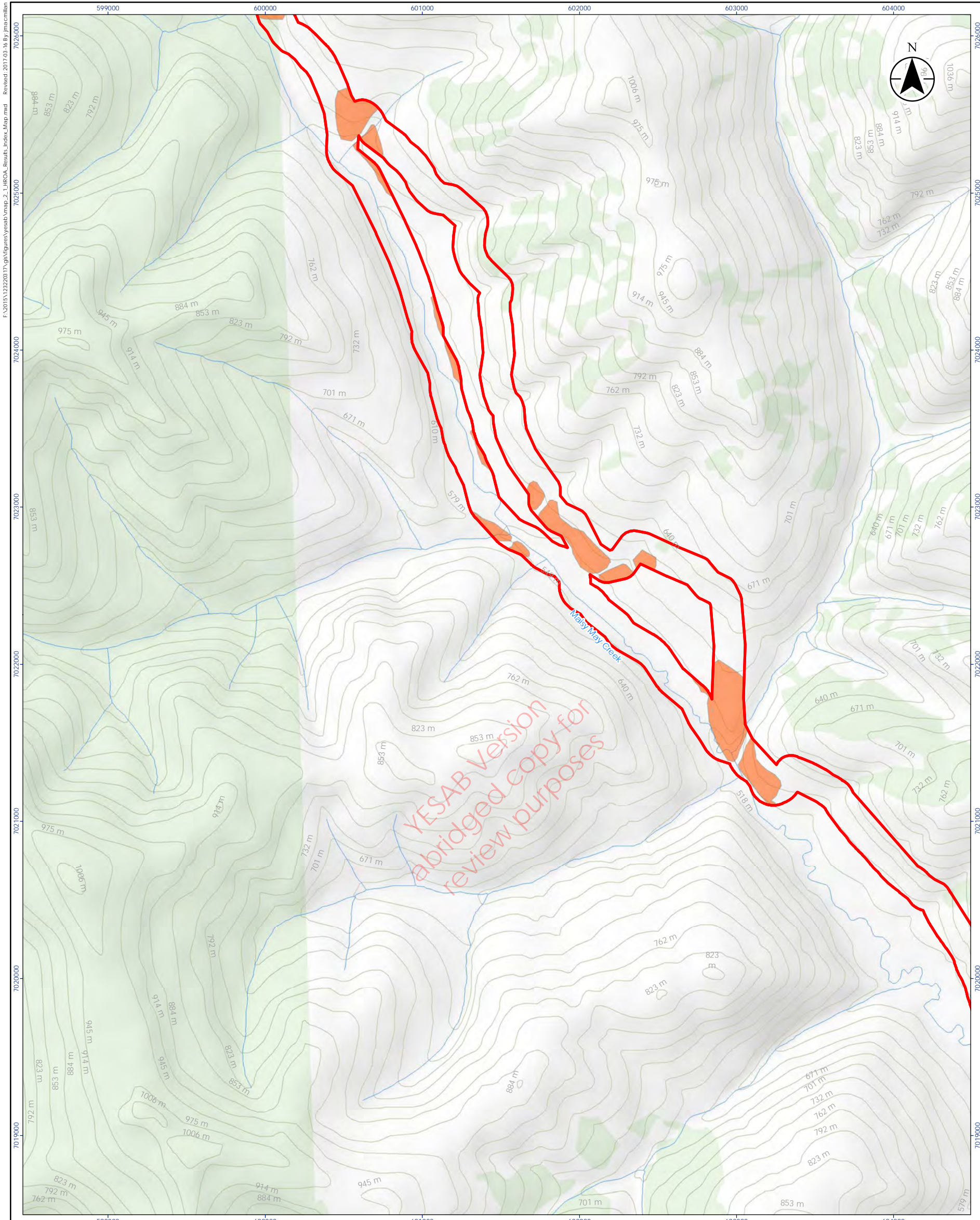


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 Proposed Access Road

Figure No.
2.10
 Title

HROA Results Map



Legend

-  30 m Contour
-  Watercourse
-  Forested Area
-  First Nation Settlement Land
-  Heritage Potential
-  Proposed Road Corridor

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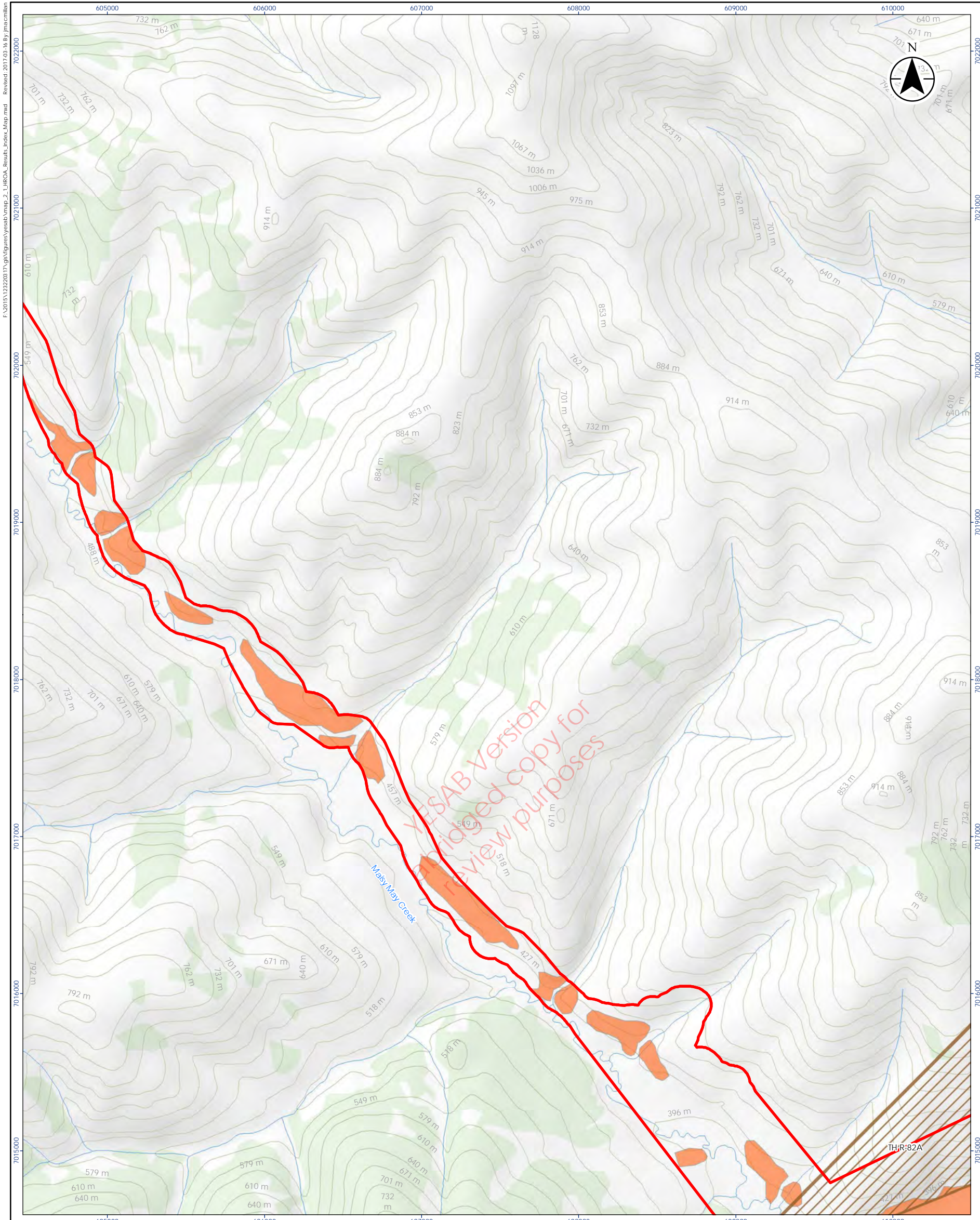
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 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
2.11
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- Notes**
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- Legend**
- 30 m Contour
 - Watercourse
 - Forested Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor

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Kaminak Gold Corporation
Heritage Resources Overview Assessment
Proposed Access Road

Figure No.
2.12

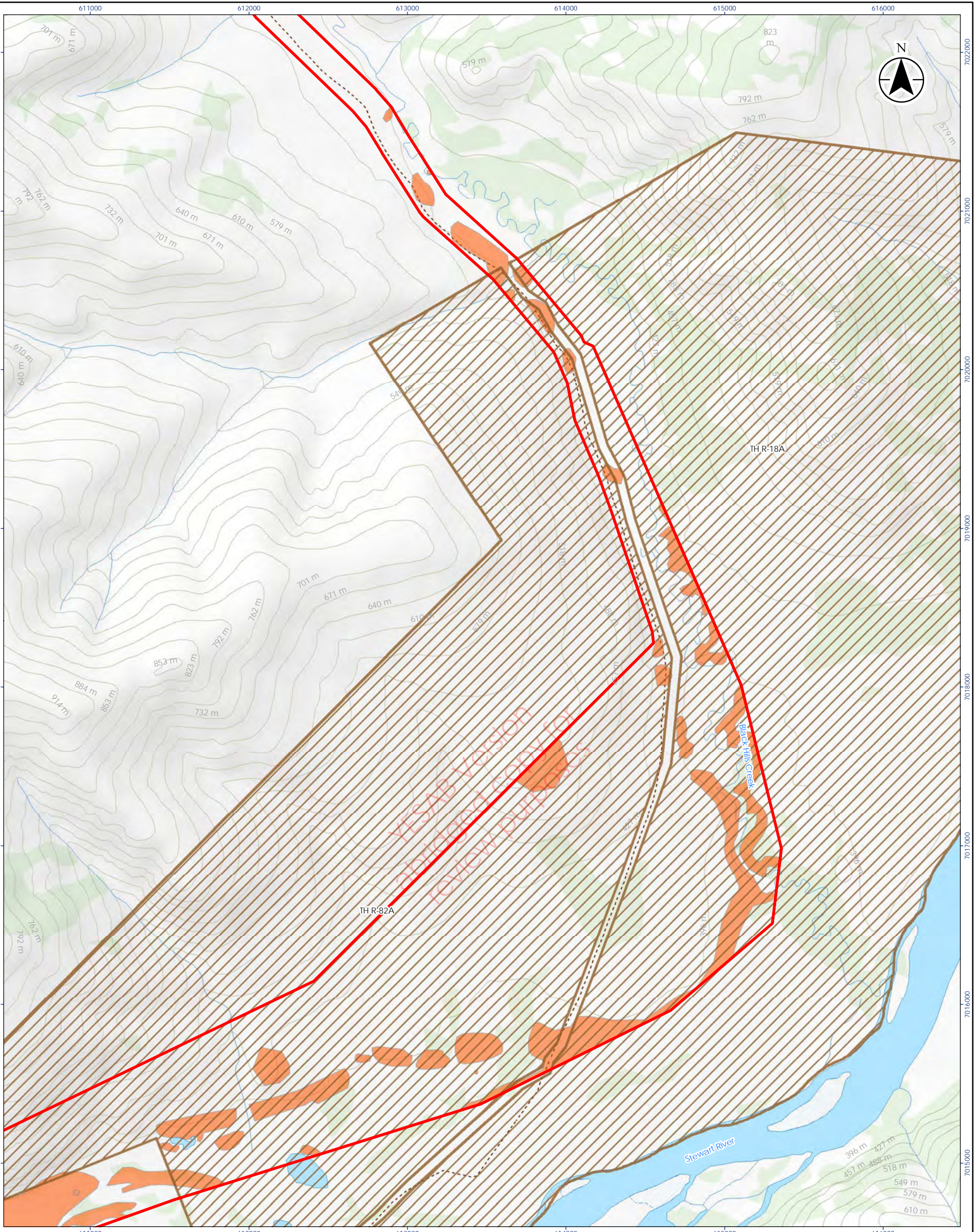
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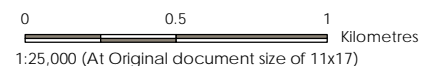
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Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Waterbody, Intermittent
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes
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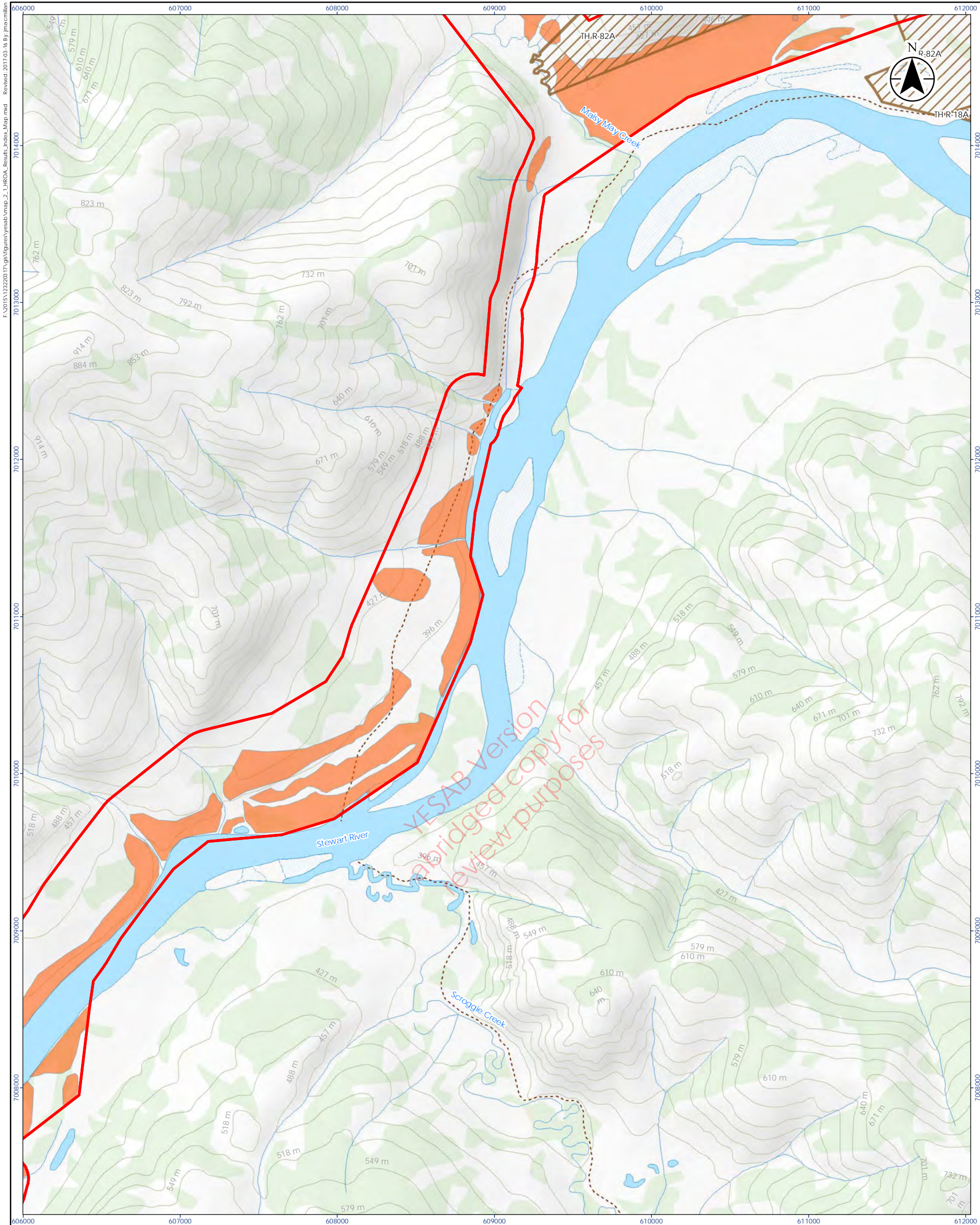


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 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
2.13
 Title

HROA Results Map



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Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Waterbody, Intermittent
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes

1. Coordinate System: NAD 1983 UTM Zone 7N
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115 O/02, 03, 06, 07, 10, 11	Technical Review by T. Heffner on 2016-02-03

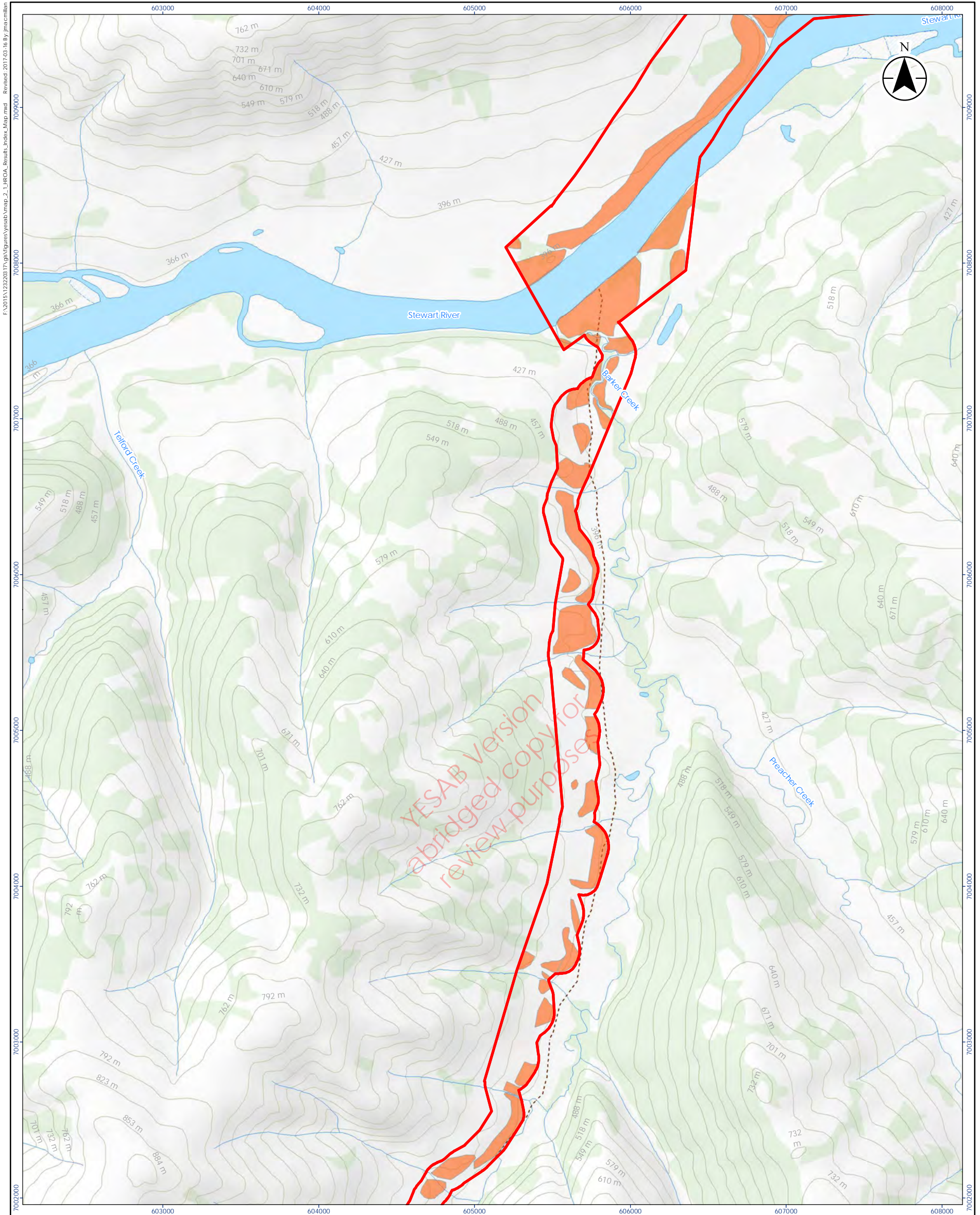
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Kaminak Gold Corporation
 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
 2.14

Title

HROA Results Map



Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Waterbody, Intermittent
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes

1. Coordinate System: NAD 1983 UTM Zone 7N
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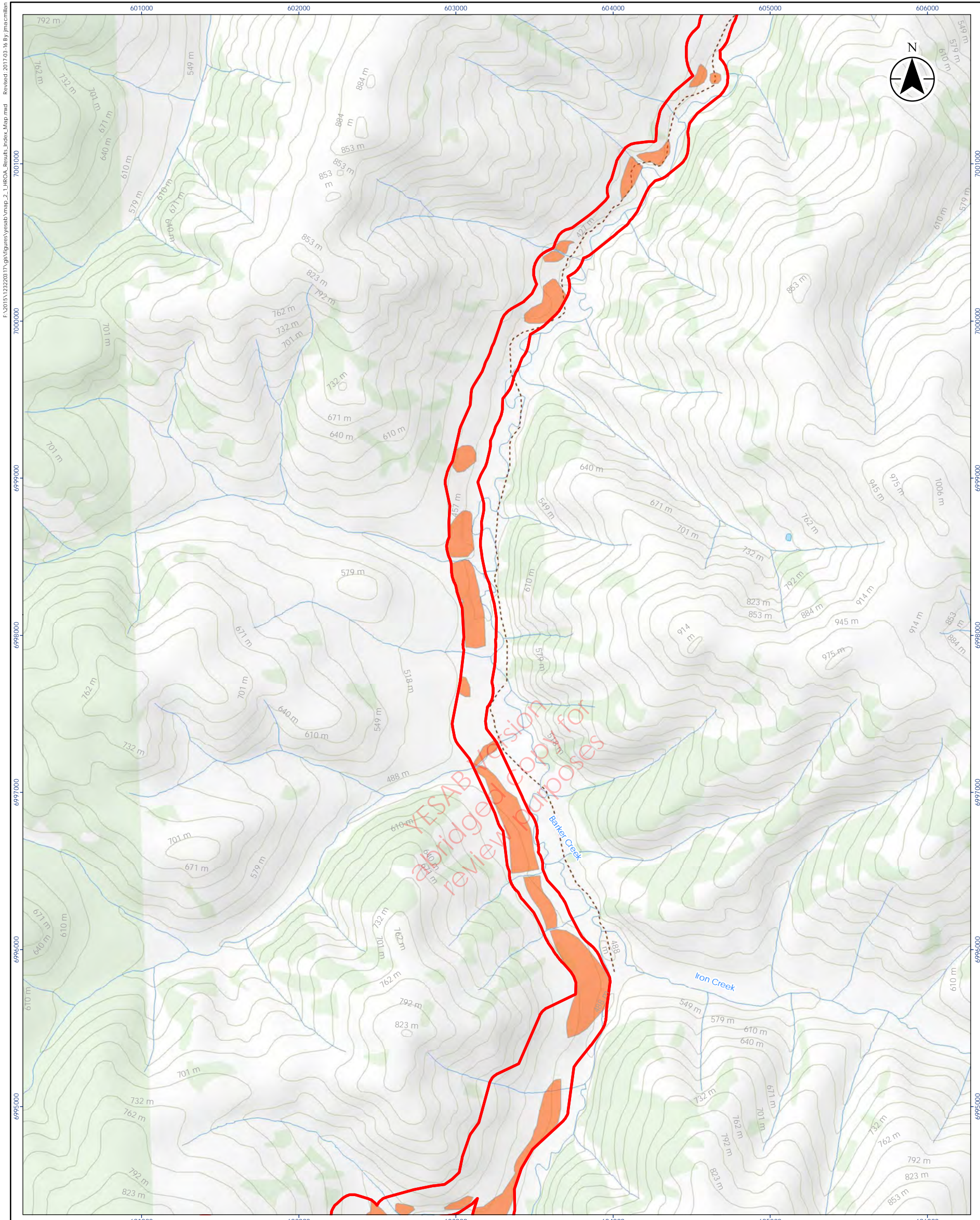


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115 J/14, 15	Updated by J. MacMillan on 2016-02-03
115 O/02, 03, 06, 07, 10, 11	Technical Review by T. Heffner on 2016-02-03

Client/Project
Kaminak Gold Corporation
Heritage Resources Overview Assessment
Proposed Access Road

Figure No.
2.15
Title

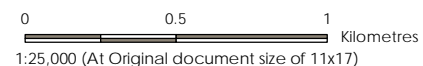
HROA Results Map



Legend

- 30 m Contour
- Trail
- Watercourse
- Waterbody
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes
 1. Coordinate System: NAD 1983 UTM Zone 7N
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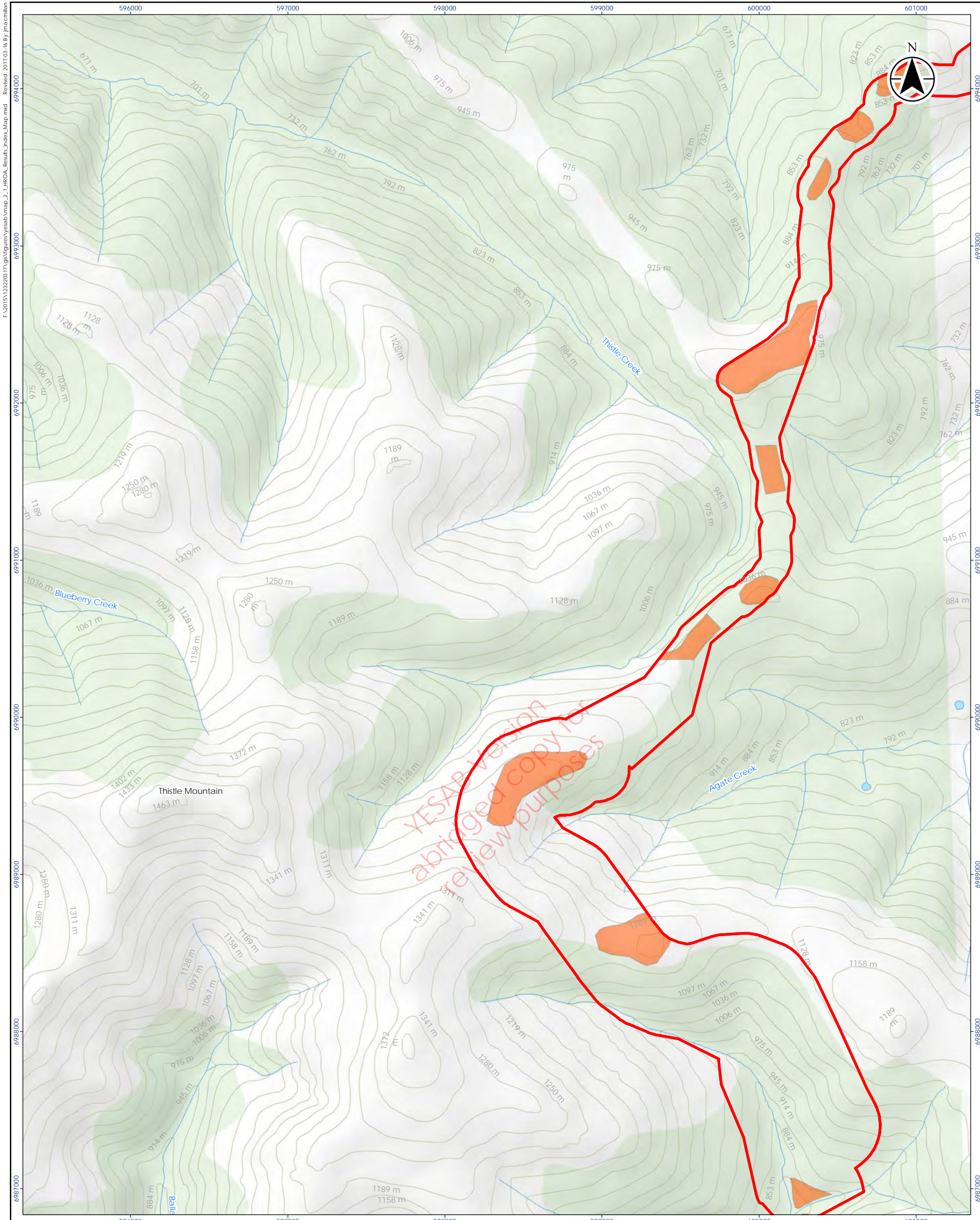


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Client/Project
 Kaminak Gold Corporation
 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
2.16

Title
HROA Results Map

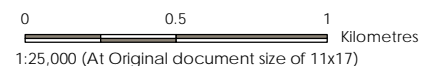


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Legend

- 30 m Contour
- Watercourse
- Waterbody
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

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 1. Coordinate System: NAD 1983 UTM Zone 7N
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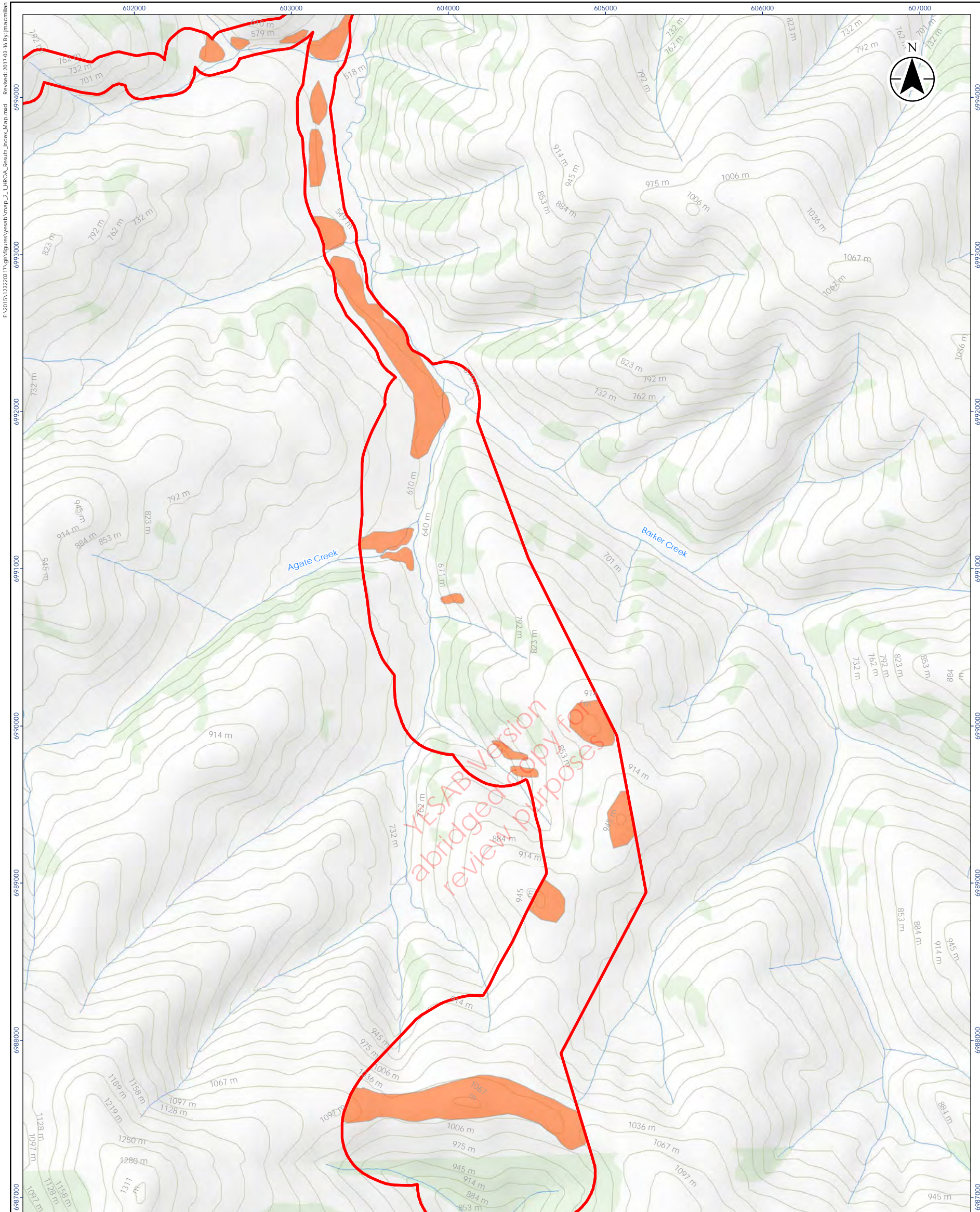
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115 J/14, 15	Updated by J. MacMillan on 2016-02-03
115 O/02, 03, 06, 07, 10, 11	Technical Review by T. Heffner on 2016-02-03

Client/Project
 Kaminak Gold Corporation
 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
2.17

Title

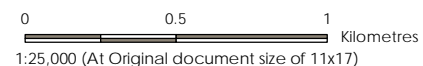
HROA Results Map



Legend

- 30 m Contour
- Watercourse
- Forested Area
- First Nation Settlement Land
- Heritage Potential
- Proposed Road Corridor

Notes
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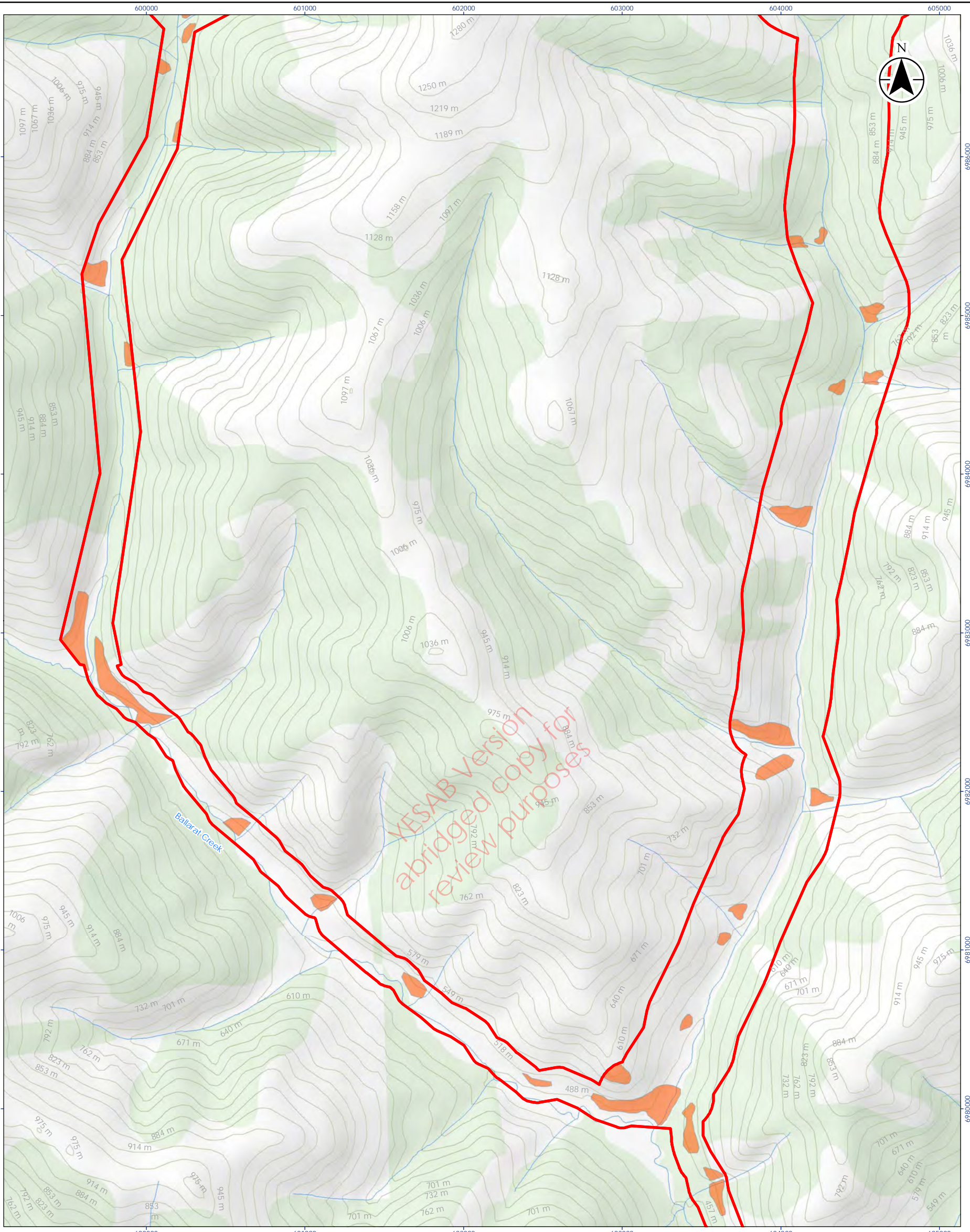


Project Location: 123220317
 NTS Map Sheets: 115 J/14, 15
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 Prepared by J. McCann on 2015-07-17
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 Kaminak Gold Corporation
 Heritage Resources Overview Assessment
 Proposed Access Road







Figure No.
 2.18

Title
 HROA Results Map



YESAB Version
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review purposes

Legend

-  30 m Contour
-  Watercourse
-  Forested Area
-  First Nation Settlement Land
-  Heritage Potential
-  Proposed Road Corridor

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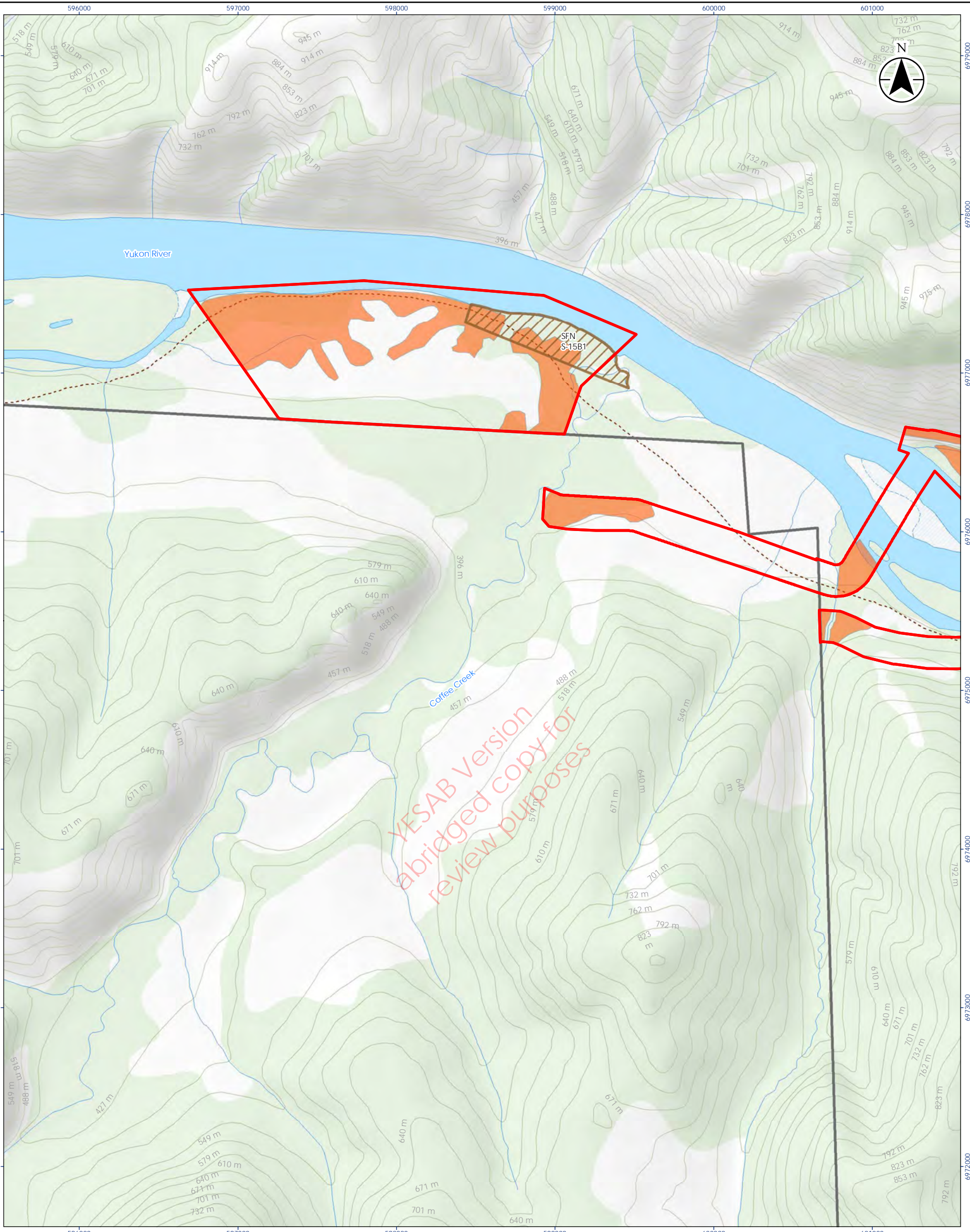
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 115 O/02, 03, 06, 07, 10, 11 Updated by J. MacMillan on 2016-02-03
 Technical Review by T. Heffner on 2016-02-03

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 Heritage Resources Overview Assessment
 Proposed Access Road

Figure No.
2.19
 Title

Notes
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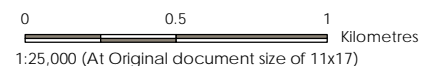
HROA Results Map



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- Legend**
- 30 m Contour
 - Trail
 - Watercourse
 - Waterbody
 - Waterbody, Intermittent
 - Forested Area
 - 2010 HROA Study Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor



Project Location	123220317
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Kaminak Gold Corporation
Heritage Resources Overview Assessment
Proposed Access Road

Figure No.
2.20

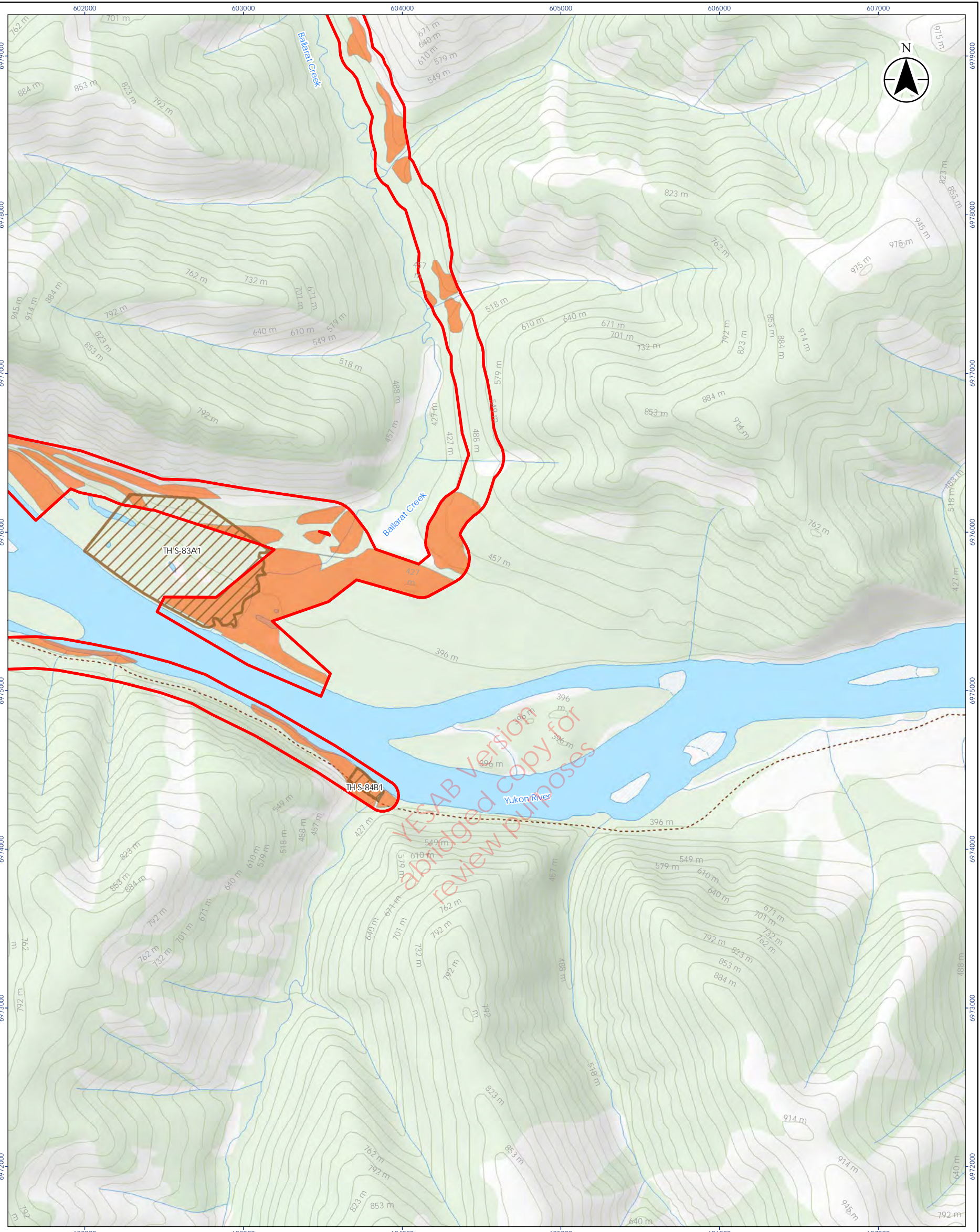
Title

HROA Results Map

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- Legend**
- 30 m Contour
 - Trail
 - Watercourse
 - Waterbody
 - Waterbody, Intermittent
 - Forested Area
 - First Nation Settlement Land
 - Heritage Potential
 - Proposed Road Corridor

0 0.5 1 Kilometres
1:25,000 (At Original document size of 11x17)



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Heritage Resources Overview Assessment
Proposed Access Road

Figure No.
2.21
Title

Notes
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HROA Results Map

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Heritage Resource Management Recommendations
March 21, 2017

6.0 HERITAGE RESOURCE MANAGEMENT RECOMMENDATIONS

This section provides recommendations, including a discussion of gaps in heritage data, a prediction of the type and number of sites expected, and a discussion of the options for managing heritage sites during exploration and development planning.

6.1 GAPS IN THE HERITAGE RESOURCES RECORD OF THE STUDY AREA

Limited archaeological survey and no systematic archaeological survey, has taken place within the current study area, although there have been a number of archaeological surveys within the general vicinity. Due to these gaps in the archaeological survey of the area and surroundings, a detailed framework for precontact land use within the area has yet to be established. Consequently, regional precontact heritage site density and distribution is not well known.

6.2 HERITAGE RESOURCE POTENTIAL AND RESOURCE VALUES

Portions of the study area are considered to have low precontact heritage resources potential, due to the rolling or sloped nature of the terrain or presence of low-lying, poorly-drained ground. Areas considered to have elevated heritage resources potential are typically located near hydrological resources on distinct, well-drained topographic features or are in upland areas on prominent landforms or areas of level terrain that provide strategic hunting positions. Examples of these topographic features include knolls, ridges, and saddles that represent favorable locations for camping while moving through the area and/or ideal lookouts or intercept locations for large mammals. Other elevated potential landforms include terrace features along fish-bearing streams and rivers. Generally, areas with elevated heritage potential are more frequent along the larger streams and their associated lakes and wetlands, but less frequent along the smaller, unnamed drainages located within the study area. Middle elevations within the northern portion of the study area are steeper and more rugged than lower or upper elevations and it is expected that archaeological site density will be lower in the middle elevation areas.

From the existing archaeological record, it is inferred that larger, more permanent precontact sites will be positioned adjacent to the major hydrological features, whereas upland sites and sites along smaller hydrological features are expected to represent short-term hunting sites with low artifact density. The remains of structures are not expected to be readily visible in this area given the regularity of forest fires and the relatively short-term precontact settlement pattern. Cultural depressions associated with precontact semi-subterranean dwellings are rare in this



HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

Heritage Resource Management Recommendations
March 21, 2017

region but may be present along the major hydrological features. Hunting blinds may also be present in upland areas.

Historic use of the area may also result in historic heritage sites, as the region is still used today for hunting and trapping. Cabins, brush structures, historic drying racks, tent remains, and trapping equipment may be present in the area. Remains of small to large scale historic mining and prospecting activities may also be present.

6.3 HERITAGE RESOURCE MANAGEMENT OPTIONS

Portions of the study area are assessed as having elevated heritage potential. A Heritage Resources Impact Assessment (HRIA) is recommended prior to any potentially land-altering development activities being conducted within 30 meters of these areas. A HRIA offers the opportunity to ground-truth the heritage resources potential and can negate or confirm the presence of heritage resources. In the event that heritage resources are discovered in the development area, site-specific management options can be provided at that time.

Another option is a Preliminary Field Reconnaissance (PFR) survey, including an aerial and pedestrian survey, which would allow refinement of the elevated heritage potential mapping and facilitate gathering of baseline heritage data that can be incorporated into project planning and the design of subsequent heritage assessments.

6.4 RECOMMENDATIONS

Areas identified as having elevated heritage resources potential are shown on Maps 2.1–2.21. A Heritage Resources Impact Assessment (HRIA) is recommended prior to any potentially land-altering development activities being conducted within 30 meters of these areas.

The remainder of the proposed access road corridor is considered to have low potential for heritage resources and no further heritage assessment is recommended in those areas.

To ensure that the discovery of any unanticipated heritage resources is addressed, it is recommended that Kaminak Gold Corporation and Goldcorp Inc. inform their personnel and contractors that, in the event heritage resources are encountered, all development activities in the vicinity of the heritage resources must be suspended immediately. In such cases, the Cultural Services Branch, Department of Tourism and Culture, Government of Yukon and the appropriate First Nation(s) must be contacted immediately with information on the heritage remains and nature of the disturbance.

HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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March 21, 2017

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HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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HERITAGE RESOURCES OVERVIEW ASSESSMENT FOR A PROPOSED ACCESS ROAD CORRIDOR TO THE COFFEE PROPERTY

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APPENDIX A GLOSSARY OF ARCHAEOLOGICAL TERMS

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ABORIGINAL; INDIGENOUS: Pertaining to the original occupants of a given region.

A-HORIZON: the uppermost, often dark coloured natural level in a soil profile characterized by roots, humus, and a lack of clay, iron, carbonates and soluble salts which have leached to lower levels.

ARCHAEOLOGY: The science concerned with the recovery, analysis, description and explanation of the remains of past human cultures.

ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA): A study undertaken for a proposed development project to determine whether it will adversely affect archaeological remains.

ARCHAEOLOGICAL SURVEY OR SITE INVENTORY: Examination of a locality for evidence of past human activity and the recording of that evidence to produce an inventory of sites in that locality.

ARTIFACT: Any manually portable product of human workmanship. In its broadest sense includes tools, weapons, ceremonial items, art objects, all industrial waste, and all floral and faunal remains modified by human activity.

BARK-STRIPPED TREE: A tree which has had bark removed by First Nations people for a number of possible purposes (i.e., fibre, food, medicine).

BASALT: A fine-grained volcanic rock used for the manufacture of chipped stone artifacts. Colour ranges from black to grey; texture granular to glass like.

B-HORIZON: That natural level within a soil profile which directly underlies the surficial A-horizon and which contains the clay, iron oxides and carbonates which have leached down from it.

BIFACE: A stone artifact flaked on both sides.

BORDEN NUMBER: A standardized number consisting of four letters and one number assigned to each archaeological site which identifies it and denotes its general location in Canada.

BORDEN SYSTEM: A code of 4 letters and a number used to designate archaeological sites in Canada (e.g., GtRx 7; FIJr 10 etc.). Proposed by Charles E. Borden, University of British Columbia, in 1954. The alphabetic prefix refers a block of 10 minutes by 10 minutes within a grid system which covers all of Canada south of 62 N latitude. The numerical suffix indicates the site within this block in numerical order of registration.

CACHE: A deliberate store of equipment, food, furs or other resources placed in, or on the ground (perhaps protected by a rock CAIRN), or raised above the ground on a platform.

CACHEPIT: Small circular depressions (usually less than 3 m) that were used to store food.



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CHALCEDONY: A semi-translucent silicate (quartz) rock with a wax-like lustre and a great range of colours, used as raw material for the manufacture of chipped stone artifacts. Commonly called agate.

CHERT: A mainly opaque, fairly granular, silicate rock with a dull shiny lustre and a great range of colours, used as raw material for the manufacture of chipped stone artifacts. Varieties include jasper and flint.

CONCHOIDAL FLAKE: A type of spall resulting from the fracture of fine grained, or glassy rocks. Characterized by a bulb of percussion, striking platform remnant, and extremely sharp edges. A predictable fracture pattern that allows the manufacture of predetermined tools from these materials.

CONTACT: The time of first prolonged direct contact between First Nations peoples and Europeans, which in the Yukon occurred during the mid 1800s with the establishment of fur trade posts. The term is synonymous with the HISTORIC PERIOD which is characterized by contemporary written works.

CONTEXT: The spatial relationships of archaeological items and samples within a site. "Primary Context" refers to materials found in their original position; "Secondary Context" refers to materials which have been displaced and re-deposited by disturbance factors; "Geological Context" is the relationship of the archaeological finds to geological strata.

CONCENTRATION: A notable accumulation of archaeological materials in a small area, such as a "concentration of flakes" etc.

CORE: (1) A blocky nucleus of stone from which flakes or blades have been removed (see MICROBLADE CORE). (2) A column or lineal sample of materials obtained by "coring" the ground, trees, etc.

CORTEX: The naturally weathered outer surface of a pebble.

CULTURE: The distinctive lifeway – including language, technology, subsistence, social organization, customs, beliefs and rituals – practiced by a people. This term can also be used to refer to the culture of particular groups of people at a particular point in time. In an archaeological context, the term culture refers to materials or objects of human origin, in contrast to natural.

CULTURAL DEPOSIT: Sediments and materials laid down by, or heavily modified by, human activity.

CULTURAL DEPRESSION: A pit excavated by people into natural sediments. Pits have been excavated for a variety of reasons including: houses (pithouses, house pit), food storage (cache, cache pit), food cooking (roasting pit, berry trenches, hearth) and burials.



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CULTURALLY MODIFIED TREE (CMT): A tree that had been intentionally altered in some way. In the interior, CMTs are usually characterized by bark-stripped trees, that is, trees that have had the bark removed to access the cambium for eating, for extracting tree sap, for manufacture, or for medicinal purposes, by First Nations people. Blazed trees may also be referred to as CMTs.

CULTURE SEQUENCE: The chronological succession of cultural traits, phases or traditions in a local area.

CULTURE TYPE: A chronologically limited cultural unit within a local culture sequence, characterized by sufficient descriptive traits to set it apart from all other units. A phase is generally represented by two or more components in several sites and is the basic classification of archaeological "cultures".

DACITE: Volcanic rock (or lava) that contains 62% to 69% silica and moderate amounts of sodium and potassium. Dacite is a variety of basalt.

DATUM: A fixed reference point on an archaeological site from which measurements are taken.

DEBITAGE: Waste byproducts from tool manufacture.

DETRITUS: Waste byproducts from tool manufacture. Most frequently applied to chips and fragments resulting from stone flaking.

DISTURBANCE: A cultural deposit is said to be disturbed when the original sequence of deposition has been altered or upset by post-depositional factors. Agents of disturbance include natural forces such as stream or wind erosion, plant or animal activity, landslides etc.; and cultural forces such as later excavations.

ETHNOGRAPHIC ANALOGY: Interpretation of archaeological remains by comparison to historical cultures.

ETHNOGRAPHY: That aspect of cultural anthropology concerned with the descriptive documentation of living cultures. In the Yukon this is based on First Nations testimony and participant observation.

ETHNO-HISTORY: The study of ethnographic cultures through historical records.

ETHNOLOGY: The aspect of cultural anthropology concerned with the comparative and processional analysis of ethnographic cultures.

FAUNAL REMAINS: Bones and other animal parts found in archaeological sites. Important in the reconstruction of past ecosystems and cultural subsistence patterns (see: MICROFAUNAL REMAINS).



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FEATURE: A nonportable product of human workmanship. Usually clusters of associated objects; pit houses, hearths, cache pits, cooking ovens etc.

FLAKE: A fragment removed from a core or nucleus of cryptocrystalline or fine grained rock by percussion or pressure. May be used as a tool with no further deliberate modification, may be RETOUCHEDED, or may serve as a PREFORM for further reduction.

FLINT: A microcrystalline silicate rock similar to CHERT, used for the manufacture of flaked stone tools. Colour most commonly grey, honey-brown, or black.

GROUND STONE: Stone artifacts shaped by sawing, grinding, and/or polishing with abrasive materials (e.g., "ground slate knives", "polished soapstone pendants" etc.).

HEARTH: A fireplace, often circular and may be unlined, rock or clay-lined, or rock-filled. Minimally consists of fire-altered rock and charcoal.

HISTORIC ARCHAEOLOGY: The archaeological investigation of POSTCONTACT sites.

HISTORIC PERIOD: The time after European contact or the beginning of written recording.

HORIZON: Layers typical of the soil profile in a particular region.

HOUSEPIT: An aboriginally excavated house floor. See PITHOUSE.

IN SITU: Archaeological items are said to be "in situ" when they are found in the location where they were last deposited.

LITHIC: Of/or pertaining to stone. A lithic artifact is one manufactured from stone.

LITHIC INDUSTRY: That part of an archaeological artifact assemblage manufactured of stone.

LITHIC SCATTER: An archaeological site consisting of two or more stone artifacts.

LITHIC TECHNOLOGY: The process of manufacturing tools, etc. from stone. Most frequently refers to stone flaking.

LOCALITY: A very large site or site area composed of two or more concentrations or clusterings of cultural remains.

MATRIX: An inclusive term for the natural and cultural sediments of an archaeological site.

MICROFAUNAL REMAINS: Very small animal remains, such as rodent bones, tiny bone fragments, insects, small molluscs, etc., discovered in an archaeological site.



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MIDDEN: A deposit of camp refuse associated with human occupational sites. Most frequently refers to coastal SHELL MIDDENS.

MUNSELL COLOUR CODE: A system of describing colours by a code of letters and numbers defining "hue", "value" and "chroma". Important in accurately describing the colours of archaeological soils and sediments.

OBSIDIAN: Natural volcanic glass. Colour ranges from nearly translucent through black, red and green. A favourable raw material for the manufacture of flaked stone tools.

PALEOSOL: "Old Soil." Buried soil horizons indicative of past soil conditions different from that presently prevailing.

PETROGLYPH: Pictures, symbols, or other artwork pecked, carved or incised on natural rock surfaces.

PICTOGRAPH: Aboriginally painted designs on natural rock surfaces. Red ochre is the most frequently used pigment and natural or abstract designs may be represented.

PITHOUSE: A semi subterranean "earth lodge" winter dwelling. Usually consisted of an earth covered log framework roof over a circular to rectangular excavation. The archaeological feature is called a housepit.

POSTCONTACT PERIOD: Refers to the period following the first arrival of Europeans (see: HISTORIC PERIOD).

PRECONTACT: Refers to the period before the first arrival of Europeans in a given area.

PREHISTORIC: The period prior to written records for any given area. In North America synonymous with PRECONTACT.

PRELIMINARY FIELD RECONNAISSANCE (PFR): A study undertaken for a proposed development project to determine whether it will adversely affect archaeological remains.

PROJECTILE POINT: An inclusive term for arrow, spear or dart-points. Characterized by a symmetrical point, a relatively thin cross section and some element to allow attachment to the projectile shaft. Flaked stone projectile points are usually classified by their outline form: triangular, leaf-shaped, lanceolate, stemmed, corner-notched, and side-notched.

PROVENIENCE: The horizontal and/or vertical position of an object in relation to a set of spatial co-ordinates.

QUARTZ CRYSTAL: Pure silicate rock crystal. Usually perfectly clear with six crystal surfaces. May be used as a raw material for lithic tool manufacture.



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RETOUCH: The removal of small secondary flakes along the edge of a lithic artifact to improve or alter the cutting properties of that edge. Retouch flaking may be BIFACIAL or UNIFACIAL.

RETOUCHED FLAKE: A stone flake which has had one or more edges modified by the deliberate removal of secondary chips.

ROCK-SHELTER: A shallow cave or rock overhang large enough to have allowed human occupancy at some time.

SCRAPER: A tool presumably used in scraping, scouring, or planing functions. Most frequently refers to flaked stone artifacts with one or more steep UNIFACIALLY RETOUCED edge(s).

SETTLEMENT PATTERN: The spatial distribution of cultural activities across a landscape at a given moment in time.

SHOVEL-SCREENING: A rapid excavation procedure in which the site matrix is shoveled directly through a screen (usually 1/4" mesh).

SHOVEL TEST: a small scale, generally informal test excavation to ascertain the nature of the deposits, to determine the presence or absence of an archaeological site, or to delimit the boundaries of a known site.

SITE: Any location with detectable evidence of past human activity. Includes HABITATION SITES, KILL SITES, QUARRY SITES, ROCK ART sites, BURIAL sites, etc.

SITE SURVEY: The process of searching for and describing archaeological sites in a given area.

SOIL SAMPLE: A quantity of soil, site matrix, or sediments collected for physical or chemical analysis.

STORAGE PIT (Also called CACHE PITS): Typically circular excavations usually less than 3 m in diameter assumed to have aboriginally functioned as storage "cellars".

STRATA: Depositional units or layers of sediment distinguished by composition or appearance. (Singular: "stratum").

STRATIGRAPHY: The study of various deposits, built up over time, which form delineated layers (such as ash, charcoal or crushed shell) in the earth walls of a pit.

SURVEY(ING): (1) In Archaeology, the process of locating archaeological sites. (2) More generally, the process of mapping and measuring points on the ground surface.

SURVEY AREA: The region within which archaeological sites are to be located.



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TOOL: An artifact that has been intentionally modified or formed for a specific purpose (i.e., projectile point, knife, scraper).

TYPE: A distinctive formal artifact class restricted in space and time, e.g., the "Folsom Point" is a projectile point "type".

TPOLOGY: The classification of artifacts according to analytical criteria, to determine and define significant trends or variations in time and space.

UNIFACE: A stone artifact flaked only on one surface.

USE WEAR: Polish, striations, breakage, or minor flaking which develop on a tool's edge during use. Microscopic examination and study of the wear may indicate the past function of tools.

WETLAND: Areas of land that are inundated by surface water or ground water sufficient to support the growth and reproduction of vegetative and aquatic life.

WORKED: Having chips, flakes, scratches or other evidence of deliberate modification on stone, bone, antler, shell, etc.

ZOOARCHAEOLOGY: The study of faunal remains found in archaeological sites and their cultural significance.

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APPENDIX 26-A-4

Heritage Resources Impact Assessment Interim Report

**YUKON ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT BOARD (YESAB)
HERITAGE RESOURCES IMPACT ASSESSMENT – INTERIM REPORT
KAMINAK GOLD CORPORATION/GOLDCORP INC. COFFEE CREEK MINE ACCESS ROAD**

ADMINISTRATION			
Permit Number	16-13ASR	Report Author	Tim Bennett
Ecofor EPN	2016-1177-001	Report Editors	Ben Vickers-Redhead, Chandra Young-Boyle, James Mooney
Ecofor Contact	Tim Bennett Archaeologist/ Permit Holder	Contact Information	[ext] [email address redacted]

PROJECT INFORMATION			
Type	Access road (new build and improvement sections)	Name	Coffee Creek Mine Access Road HRIA
Proponent	Kaminak Gold Corporation/Goldcorp Inc.	Contact	Jennie Gjertsen 1020-800 West Pender Street, Vancouver, BC V6C 2V6 [email address redacted]

ASSESSMENT DESCRIPTION			
Assessment Date(s)	July 18-25, 2016	Survey Type	Impact Assessment
Development Type:	Access road development with new build and improvement to existing roads		

TRADITIONAL TERRITORIES			
First Nation	Na-Cho Nyak Dun First Nation	Contact	Joella Hogan 101 Future Road Box 220, Mayo, YT Y0B 1M0 [email address redacted]
First Nation	Selkirk First Nation	Contact	Teri-Lee Isaac Box 40 Pelly Crossing, YT Y0B 1P0 [ext] [email address]
First Nation	Tr'ondëk Hwëch'in First Nation	Contact	Debbie Nagano PO Box 599 Dawson City, YT Y0B 1G0 e[ext]

TRADITIONAL TERRITORIES (CONTINUED)			
First Nation	White River First Nation	Contact	Jane Rogers PO Box 2 Beaver Creek, YT Y0B 1A0 [phone number redacted] [email address redacted]

GEOGRAPHIC REFERENCE			
Ecoregion	Klondike Plateau	Map(s) Attached	Yes
NTS Map sheets	115J/14, 115J/15, 115O/02, 115O/06, 115O/07, 115O/10, and 115O/11	Area (ha)	n/a
UTM (NAD 83)	North End: 7V 615665E 7061430N South End: 7V 597425E 6977385N	Elevation	~380-1150 m asl

Location: This proposed project is located south of Dawson City, YT and crosses portions of NTS mapsheets 115J/14, 115J/15, 115O/02, 115O/06, 115O/07, 115O/10, and 115O/11 (see Appendix A). Kaminak Gold Corporation/Goldcorp Inc. is proposing to construct new road segments and make improvements to existing road segments to facilitate access to the proposed Coffee Creek mine site. The proposed ROW crosses both the Stewart and Yukon Rivers, and a number of areas of elevated heritage resource potential that were identified by MacMillan (2015). The proposed ROW crosses the traditional territories of the Na-Cho Nyäk Dun First Nation, the Selkirk First Nation, the Tr'ondëk Hwëch'in First Nation, and the asserted territory of the White River First Nation.

MANAGEMENT SUMMARY

On behalf of Kaminak Gold Corporation/Goldcorp Inc., Ecofor Consulting Ltd. conducted a Heritage Resource Impact Assessment (HRIA) for the proposed Coffee Creek Mine Access Road development (see Appendix A). The proposed development includes both the construction of new road segments and improvements to existing road segments to facilitate access to the proposed Coffee Creek mine site.

The project area was assessed by Ecofor employees Tim Bennett (permit holder), Ben Vickers-Redhead, Chandra Young Boyle, Delaney Prysnuik, Kisselle Reid, and Alex Gunn. Representatives from the Na-Cho Nyak Dun First Nation (Shayla Olsen and Carolene Lucas), Selkirk First Nation (Sheilynn Alfred-Hager), Tr'ondëk Hwëch'in First Nation (Kim Joseph and Robert Farr), and White River First Nation (Garrett Enoch and Mike Nieman) also participated in the fieldwork. Personnel were divided into three crews under the direction of Tim Bennett, with Ben Vickers-Redhead and Chandra Young-Boyle operating as crew leads.

Fieldwork was conducted between July 18-25, 2016. Survey was conducted on foot, by truck, by UTV, and by helicopter as conditions and access logistics required. Survey efforts were focused on the assessment of predicted areas of elevated heritage resource potential identified during a previous Heritage Resource Overview Assessment (HROA; see MacMillan 2015) that overlap with the ground disturbance footprint of the proposed Coffee Creek Mine Access Road development. However, due to the logistics of moving along the development corridor, almost the entire proposed ROW, including areas not specifically identified in the preceding HROA, were observed and assessed by Ecofor staff.

Field survey efforts found that the majority of the areas of potential identified in the preceding HROA did not possess the predicted elevated potential for a number of reasons. The most common potential limiting

factors encountered were high levels of previous disturbance (typically related to past and ongoing mining operations in segments where existing roads are being improved) and large portions of new build segments of the proposed ROW that cross significant side slope (>45°). Despite the prevalence of these potential limiting factors, 11 areas with sufficient potential to warrant shovel testing were identified. In total, 168 shovel tests (11 of which were positive for heritage resources) and one 1 x 1 m evaluative excavation unit were excavated, which led to the identification of three new archaeological sites: KfVi-16, KgVi-1, and KjVj-2. No further work is recommended at any of these sites in relation to the proposed Coffee Creek Mine Access Road development.

Moreover, attempts were made to relocate 20 YHSI registered historic sites to determine whether the proposed development posed any risk of impact to them, six previously undocumented Historic Period structures/sites were identified. No heritage concerns were found in relation to these sites.

Further information about the tested areas is presented below in the Evaluation section of this report.

POTENTIAL IMPACTS

Potential impacts related to the Coffee Creek Mine Access Road development are related to the construction of new sections of road and/or the improvement of existing roads. As such, ground disturbance may occur as a result of leveling and/or building up new sections of roadbed, vegetation clearing along the edges of the ROW, and excavations and quarrying at related borrow locations.

ARCHAEOLOGICAL ASSESSMENT METHODOLOGY

Heritage resources potential was determined by identifying site presence indicators using a variety of resources including landscape features (e.g. waterbodies, wetlands, and watercourses), topographic mapping, Yukon Archaeological Sites Database, aerial photographs, and orthographic images where possible. The known sites databases were used to determine if sites were located in or near the project area. Spatial and topographic mapping was used to locate waterbodies, watercourses, wetlands, and landforms that may indicate areas or corridors that have higher potential for heritage sites. Project development areas less than 100 m from water were interpreted as having higher heritage resource potential than areas greater than 100 m of water. Aerial photographs, topographic maps, and orthographic images were used to determine prominent topography with high potential for heritage resources. A Heritage Resource Overview Assessment study (see MacMillan 2015) previously commissioned by the proponent was also consulted to guide the prefield identification of areas of heritage potential.

During the field assessment phase of this project, areas of elevated heritage resource potential were transected at intervals of approximately 5 m to 15 m with shovel tests being excavated approximately 1-5 m to 15 m apart in areas deemed to have potential for subsurface heritage resources. Shovel tests measured at least 30 cm by 30 cm, and were excavated with shovel and trowel as needed into sterile sediments. One evaluative 1 x 1 m excavation unit was also excavated by quad and in 10 cm arbitrary levels. All excavated sediments were screened through ¼ inch mesh. Artifacts recovered were collected and bagged according to the shovel test unit and stratum, or arbitrary 5 cm vertical interval. Shovel test and excavation unit sediment profiles were recorded by depth below surface and natural and cultural soil strata. All shovel tests and excavation units were backfilled and returned to as close to natural conditions as possible. When subsurface tests were positive for heritage resources, additional testing was conducted at close intervals to establish the horizontal extent of the site. All sites were photographed and the site location was recorded using a hand-held GPS unit. Moreover, all heritage sites were flagged with a 30 m

buffer (marked with “no work zone” ribbon). Site sketch maps were prepared in the field for all sites encountered. Detailed notes were taken on all sites encountered and those data was submitted to the Yukon Heritage Branch for inclusion in the site inventory and the issuance of a Borden number.

EVALUATION

As noted above, although survey efforts were focused on areas of elevated heritage resource potential identified in the preceding HROA study for the Coffee Creek Road development (see MacMillan 2015), the logistics of moving between these elevated potential areas meant that the entire proposed ROW was inspected by Ecofor staff. Survey tracks are presented in the attached mapping to illustrate the coverage of the ROW achieved during this HRIA. In most cases, field assessment involved “boots on the ground” inspection while traveling along the ROW by foot, truck, or UTV. However, assessment in some small areas was limited to aerial inspections made via low, slow passes in a helicopter. Only one potential area identified during the MacMillan 2015 HROA was limited to helicopter only inspection. This area of elevated potential was found to be located on a steep slope (Photo 1), and was therefore assessed on having insufficient potential to warrant further assessment on foot.

This trend of pre-field identified areas of elevated potential being situated on steep slopes was found to be a common phenomenon due to the mountainous nature of the terrain crossed by the proposed ROW (Photo 2). The traversing of steep side slopes was found to be an especially significant heritage potential limiting factor in “new build” portions of the proposed ROW, such as the section between approximately Agata Creek and where the unnamed creek followed by the ROW on the south side of the Yukon/Stewart River drainage divide joins Ballarat Creek (Photo 3), and the section between Maisy May Camp and the Stewart River (Photo 4). That said, slope was not restricted to these areas, and effectively reduced the HROA modeled potential throughout the majority of the project area, including areas where existing roads are being improved to be incorporated into the Coffee Creek Road (Photo 5). Heritage resource potential in areas where existing roads are being improved as part of the Coffee Creek Road development was also often limited by high levels of previous disturbance related to past and ongoing mining operations and road construction along the proposed ROW (Photo 6; Photo 7; Photo 8; Photo 9). Such previous disturbance is especially prevalent in the area between the Stewart River and the divide between the Stewart/Yukon drainage catchments and in the vicinities of established placer mining operations and camps on the north side of the Stewart River (e.g. along the Indian River, Dominion Creek, Eureka Creek, Maisy May Creek, etc.).

Despite the prevalence of sloping terrain and high levels of previous disturbance, 11 shovel test locations (STLs) were identified and tested. This testing resulted in the identification of three new archaeological sites: KfVi-16, KgVi-1, and KjVj-2. Moreover, 20 YHSI historic sites were either revisited or confirmed as being outside of the potential impact zone, and six previously undocumented structures/sites with possible historic significance were recorded. Specific details about the work conducted at these sites is presented below. **Note: To make this document suitable for public distribution through the YESAB Online Registry and other public sources all sensitive site data has been removed, including in text geographic references, results mapping and photographs, and Archaeological Site Inventory forms/artifact catalogs.**

1.0 Shovel Test Locations and Newly Recorded Archaeological Sites

1.1 STL 1

STL 1 is located on a NW-SE trending break in slope overlooking a drainage to the ENE (Photo 10; see Appendix A mapsheet 3 of 34). The tested landform measures approximately 10 x 20 m. Vegetation at

STL 1 includes aspen and spruce, with an understory of Labrador tea, rose, mosses, and grasses. In total, eight shovel tests were excavated at STL 1 in two rows of four with 5 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-8 cm, followed by light brown silt from 8-10 cm, medium brown silt with 40% sub-rounded pebble content from 10-20 cm, then mottled brown/grey silt with 40% sub-rounded pebble content from 20-40 cm below surface (Photo 11). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 1 in relation to the proposed Kaminak Coffee Creek Road development.**

1.2 STL 2

STL 2 is located on a N-S trending break in slope overlooking a drainage to the E along the same greater landform that STL 1 is situated upon (Photo 12; see Appendix A mapsheet 3 of 34). The tested landform measures approximately 25 x 5 m. Vegetation at STL 1 primarily aspen, with some small spruce and a grassy understory. In total, eight shovel tests were excavated at STL 2 in two rows of four with 5 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-5 cm, followed by grey clays from 5-35 cm below surface (Photo 13). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 2 in relation to the proposed Kaminak Coffee Creek Road development.**

1.3 STL 3 – KJVj-2

STL 3 is located on a SW-NE trending ridge with good view of valley below and Haystack Mountain to the NNW (Photo 14; see Appendix A mapsheet 9 of 34). The tested landform measures approximately 15 x 5 m. Vegetation at STL 3 includes on overstory of aspen and willow, with an understory of blueberry, Labrador tea, mosses, and lichen. In total, 16 shovel tests were excavated (see Appendix B). Sediment profiles encountered consisted of forest litter/organics from 0-6 cm, followed by dark brown site from 6-8 cm, medium brown silt with 60% angular cobble/pebble content from 8-20 cm, then light grey silty sand with 60% angular cobble/pebble content from 20-40 cm below surface (Photo 15). One of the 16 shovel tests was positive for heritage resources, resulting in the identification of newly recorded archaeological site KJVj-2 (see Appendix B).

KJVj-2 is a Precontact Period First Nations lithic scatter. The single positive shovel test at the site yielded an assemblage of 22 pieces of non-diagnostic lithic debitage (see Appendix B). All artifacts are grey chert, and were found within the uppermost strata (0-6 cm below surface) observed in STL 3. Because of the high priority and construction schedule of this portion of the Coffee Creek Road, Ecofor staff worked directly with the road engineer and construction crew to establish a 30 m buffer around the KJVj-2 site area and reroute the road ROW into an area of low heritage resource potential located immediately east of the buffered site area (Photo 16).

As a result of these avoidance efforts, **no further heritage resource work is recommended at STL 3/KJVj-2 in relation to the proposed Kaminak Coffee Creek Road development.** However, if future developments have the potential to impact similar landforms in the vicinity further assessment is recommended prior to the commencement of ground disturbing activities.

1.4 STL 4

STL 4 is located on a small knoll overlooking a wetland with a small pond to the east (Photo 17; see Appendix A mapsheet 19 of 34). The tested landform measures approximately 7 x 5 m. Vegetation at STL 4 includes an overstory of spruce and aspen, with an understory of low willows, rose, fireweed, and grasses. In total, five judgementally placed shovel tests were excavated at STL 4 with approximately 3 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-6 cm, followed by brown sandy

loam from 6-10 cm, yellow/brown silty sand from 10-18 cm, then dark brown fine grained sandy clay from 18-35 cm below surface (Photo 18). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 4 in relation to the proposed Kaminak Coffee Creek Road development.**

1.5 STL 5

STL 5 is located on an E-W running terrace above a small creek (Photo 19; see Appendix A mapsheet 21 of 34). The tested landform measures approximately 20 x 5 m, and is slightly sloping throughout. The terrace continues to the west from the tested area into a higher potential (flatter) area, but this area falls outside the proposed ROW and was not tested. Vegetation at STL 5 is relatively open, with an overstory of spruce an aspen and an understory of low shrubs and grasses. In total, seven judgementally placed shovel tests were excavated at STL 5 with approximately 3-5 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-4 cm, followed by orangish tan silt with roots from 4-20 cm, then yellowish tan silts from tabular cobbles from 20-30 cm below surface (Photo 20). All shovel tests were negative for heritage resources, but evidence of recent human activity in the area was observed in the form of several discarded minnow traps (Photo 21). Based on these results, **no further heritage resource work is recommended at STL 5 in relation to the proposed Kaminak Coffee Creek Road development.**

1.6 STL 6

STL 6 is located on a poorly defined landform above the south bank of the Stewart River (Photo 22; see Appendix A mapsheets 21 and 22 of 34). The STL runs along approximately 65 m of the river edge between the bank and a cat trail/road cut. Vegetation at STL 6 includes an overstory of spruce, with an understory of sphagnum moss, willow, rose, horsetail, kinnikinnick, and grasses. In total, 25 shovel tests were excavated in two rows with approximately 3-5 m spacing. Sediment profiles encountered consisted of sphagnum moss/forest litter/organics from 0-14 cm, followed by fine grained grey sand from 14-46 cm, reddish brown sandy clay from 46-50 cm, then mottled grey clay from 50-65 cm (Photo 23). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 6 in relation to the proposed Kaminak Coffee Creek Road development.**

1.7 STL 7 – KgVi-1

STL 7 is located on a flat portion of a ridge saddle between two mountains at the high point of a pass between lands drained into the Yukon and Stewart Rivers (Photo 24 and Photo 25; see Appendix A mapsheet 28 of 34). The tested landform measures approximately 60 x 40 m. Vegetation is dominated by low willow and scrub birch, with sparse spruce trees and an understory of mosses, Labrador tea, and blueberry. In total, 37 shovel tests were excavated, typically with 5 m spacing (see Appendix C). Sediment depths were somewhat variable, ranging from quite shallow to approximately 20 cm before reaching tabular degraded bedrock. Sediment profiles observed in shallower tests consisted of moss and organic soils to a depth of 5-10 cm, followed by black loam with tabular cobbles to 10-15 cm, before reaching the degraded bedrock in an olive clayey silt matrix (Photo 26). Typical deeper shovel test profiles consisted of litter and moss from 0-5 cm, followed by black loam from 5-8 cm, then grey/olive clayey silt with 50% tabular cobbles from 8-10 cm before reaching tabular cobbles in an orangish clayey silt matrix that continued to 20 cm below surface (Photo 27). One of the 37 shovel tests was positive for heritage resources, resulting in the identification of newly recorded archaeological site KgVi-1 (see Appendix C).

KgVi-1 is a Precontact Period First Nations isolated find of a lithic scraper (see Appendix C). This scraper, made of grey chert, was recovered within the first 10 cm below surface. Additional bracketing shovel tests were excavated at 1 m intervals around the positive test, but no additional artifacts were recovered (see Appendix C).

The positive shovel test was flagged in the field with a 30 m avoidance buffer pending a response from Yukon Heritage. However, based on the results of the bracketing tests around the positive shovel test, additional testing throughout the STL 7 area, and isolated find classification of KgVi-1, the potential for the presence of additional heritage resource materials at this locality is considered to be low. Therefore, **it is recommended that the 30 m buffer around the positive test be disregarded, and that no further heritage resource work is recommended at STL 7/KgVi-1 in relation to the proposed Kaminak Coffee Creek Road development.**

1.8 STL 8

STL 8 is located at the intersection of the proposed Coffee Creek Road ROW and Ballarat Creek (Photo 28; see Appendix A mapsheet 32 of 34). The STL runs along approximately 20 m of bank (the width of the ROW) on both sides of the creek. Vegetation at STL 8 includes an overstory of spruce and aspen, with an understory of rose bushes, sedges, and grasses. In total, 8 shovel tests were excavated; one row of four on each side of Ballarat Creek with 5 m spacing. Sediment profiles encountered consisted of forest litter from 0-2 cm, followed by brown sandy silt with roots from 2-35 cm, then brown/tan sand with pebbles and cobbles from 35-45 cm (Photo 29). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 8 in relation to the proposed Kaminak Coffee Creek Road development.**

1.9 STL 9 – KfVi-16

STL 9 is located atop a well-defined, south facing, mid-slope terrace overlooking a wetland immediately below a steep slope then the Yukon River (Photo 30; see Appendix A mapsheet 33 of 34). The tested landform measures approximately 15 x 8 m, and is not located within one of the areas of elevated potential identified during the HROA phase of this project (see MacMillan 2015). The vegetation on the terrace edge is quite open and grassy, with a few aspens and spruce. The surrounding forest is aspen dominated, but more closed, with a secondary component of spruce. In total, 41 shovel tests were excavated, 10 of which were positive for cultural materials which resulted in the identification of new archaeological site KfVi-16 (see Appendix D). Due to the high percentage of positive tests, shovel test spacing was at 1-2 m across the STL. Additionally, one 1 x 1 m evaluative test unit was excavated over one of the positive shovel tests (see Appendix D). Sediment profiles observed in excavations consisted of a grass root mat from 0-2 cm, followed by fine tan silt from 2-20 cm, then lighter coloured, more compact fine tan silt to a depth of 40 cm (Photo 31, Photo 32, and Photo 33).

The identified site, KfVi-16, is a Precontact Period First Nations campsite. It is primarily represented by a scatter of non-diagnostic lithic debitage (n=43), but a small assemblage of burnt, highly fragmented, unidentifiable bone fragments (n=10; limited to one shovel test) was also recovered (see Appendix D). The lithic assemblage included multiple colours of chert (grey, n=35; grey and white, n=2; red, n=4) and basalt (black, n=2) artifacts. Twenty-two lithic artifacts were recovered from the shovel tests (range 1-7 per positive test), with the remaining 21 being recovered from the evaluative test unit (NE quad, n=7; SE quad, n=12; SW quad, n=2; NW quad, n=0). The shovel test containing the faunal remains is located near the north edge of the site, where the terrain begins sloping upward, and was negative for lithic materials.

The site area was flagged in the field with a 30 m avoidance buffer with the exception of an area on the south edge, which was too steep to negotiate, pending a response from Yukon Heritage. However, based on the results presented above and high level of testing conducted during this HRIA, the potential for the presence of additional significant heritage resource materials at this locality is considered to be low. Therefore, **it is recommended that the 30 m buffer around the positive test be disregarded, and that no**

further heritage resource work is recommended at STL 9/KfVi-16 in relation to the proposed Kaminak Coffee Creek Road development.

1.10 STL 10

STL 10 is located on a defined break in slope leading down to a wetland to the north (Photo 34; see Appendix A mapsheet 34 of 34). The tested landform measures approximately 8 x 4 m. Vegetation at STL 10 includes an overstory of spruce, aspen, and birch, with an understory of low willows, rose, moss, and horsetails. In total, six shovel tests were excavated in two rows running parallel to the break in slope at STL 10 with approximately 3 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-6 cm, followed by reddish brown coarse grained sandy silt with 20% pebble inclusions from 6-15 cm, then grey/brown silty gravel with cobbles from 15-36 cm below surface (Photo 35). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 10 in relation to the proposed Kaminak Coffee Creek Road development.**

1.11 STL 11

STL 11 is located on a defined break in slope leading down to a wetland to the north (Photo 36; see Appendix A mapsheet 34 of 34) along the same greater landform that STL 10 is situated upon. The tested landform measures approximately 8 x 4 m. Vegetation at STL 11 includes an overstory of spruce, aspen, and birch, with an understory of low willows, rose, moss, and horsetails, but with greater moss cover than seen at STL 10. In total, six shovel tests were excavated in two rows running parallel to the break in slope at STL 10 with approximately 3 m spacing. Sediment profiles encountered consisted of forest litter/organics from 0-6 cm, followed by reddish brown coarse grained sandy silt with 20% pebble inclusions from 6-21 cm, grey/brown silty sand from 21-24 cm, a blackish brown lens from 24-26 cm, then returning to grey/brown silty sand to 32 cm below surface (Photo 37). All shovel tests were negative for heritage resources. Based on these results, **no further heritage resource work is recommended at STL 11 in relation to the proposed Kaminak Coffee Creek Road development.**

2.0 YHSI Sites

2.1 Coffee Creek Telegraph Office – 115J-14-001

The Coffee Creek Telegraph Office site (Photo 38, Photo 39, Photo 40, Photo 41, and Photo 42; see Appendix A mapsheet 34 of 34) is located approximately 200 m outside of the proposed ROW in an area with no proposed ground disturbance, and within the existing Coffee Creek Min camp. The camp area will not be impacted by the construction of the Coffee Creek Road. **Therefore, no further heritage resource work is recommended at the Coffee Creek Telegraph Office site in relation to the Coffee Creek Road development.**

2.2 Ballarat Creek Cabin 1 – 115J-15-001

The Ballarat Creek Cabin 1 site (see Appendix A mapsheet 32 of 34) is located approximately 640 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Ballarat Creek Cabin 1 site in relation to the Coffee Creek Road development.**

2.3 Ballarat Creek Cabin 2 – 115J-15-002

The Ballarat Creek Cabin 2 site (see Appendix A mapsheet 32 of 34) was revisited by Ecofor field crew during survey efforts (Photo 43, Photo 44, Photo 45, and Photo 46). It is currently listed in the YHSI

inventory at a location that places it outside of the proposed ROW and associated ground disturbance zones. However, during the revisit that coordinate was found to be inaccurate. A new waypoint taken at the site during this HRIA shows the structure's true location. This revised location still places the Ballarat Creek Cabin 2 site well outside of the proposed ROW (approximately 550 m) and associated ground disturbance areas (approximately 135 m) where it will not be impacted by construction activities. **Therefore, no further heritage resource work is recommended at the Ballarat Creek Cabin 2 site in relation to the Coffee Creek Road development. However, it is recommended that its location be updated in the YHSI listing.**

2.4 Barker Creek Building – 1150-02-004

The Barker Creek Building site (see Appendix A mapsheet 22 of 34) was revisited by Ecofor field crew during survey efforts (Photo 47). The site includes the listed cabin, and several other more modern looking structures including a log cradle with a mounted fuel tank (Photo 48) and small log drying racks (Photo 49). It is currently listed in the YHSI inventory at a location which places it within the proposed ground disturbance zone associated with the Coffee Creek Road ROW. However, during the revisit that coordinate was found to be inaccurate. A waypoint taken at the site during this HRIA shows the structure to be located approximately 20 m outside the ROW, where it will not be impacted by construction activities. **Therefore, no further heritage resource work is recommended at the Barker Creek Building site in relation to the Coffee Creek Road development. However, it is recommended that its location be updated in the YHSI listing.**

2.5 Australia-Sulphur Ditch Dominion Syphon Discharge – 1150-10-045

The Australia-Sulphur Ditch Dominion Syphon Discharge site (see Appendix A mapsheet 2 of 34) is located approximately 600 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Australia-Sulphur Ditch Dominion Syphon Discharge site in relation to the Coffee Creek Road development.**

2.6 Australia-Sulphur Ditch Pumphouse – 1150-10-046

The Australia-Sulphur Ditch Pumphouse site (see Appendix A mapsheet 2 of 34) is located approximately 280 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Australia-Sulphur Ditch Pumphouse site in relation to the Coffee Creek Road development.**

2.7 Dredge 6 – 1150-10-047

The Dredge 6 site (see Appendix A mapsheet 1 of 34) is located approximately 50 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Dredge 6 site in relation to the Coffee Creek Road development.**

2.8 Eureka Creek No. 4 Cabin – 1150-10-052

The Eureka Creek No. 4 Cabin site (see Appendix A mapsheet 5 of 34) is located approximately 25 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct

and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Eureka Creek No. 4 Cabin site in relation to the Coffee Creek Road development.**

2.9 Eureka Creek No. 3 Cabin – 1150-10-053

The Eureka Creek No. 3 Cabin site (see Appendix A mapsheet 5 of 34) is located approximately 50 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Eureka Creek No. 3 Cabin site in relation to the Coffee Creek Road development.**

2.10 Eureka Creek No. 2 Cabin – 1150-10-054

The Eureka Creek No. 2 Cabin site (see Appendix A mapsheet 5 of 34) is located approximately 100 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Eureka Creek No. 2 Cabin site in relation to the Coffee Creek Road development.**

2.11 Eureka Creek No. 1 Cabin – 1150-10-055

The Eureka Creek No. 1 Cabin site (see Appendix A mapsheet 5 of 34) is located approximately 215 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Eureka Creek No. 1 Cabin site in relation to the Coffee Creek Road development.**

2.12 Granville West Foundation F-2 and F-3 – 1150-10-097

The Granville West Foundation F-2 and F-3 site (see Appendix A mapsheet 1 of 34) is located approximately 75 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Granville West Foundation F-2 and F-3 site in relation to the Coffee Creek Road development.**

2.13 Granville West Collapsed Building B-2 – 1150-10-098

The Granville West Collapsed Building B-2 site (see Appendix A mapsheet 1 of 34) is located approximately 75 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Granville West Collapsed Building B-2 site in relation to the Coffee Creek Road development.**

2.14 Granville West Latrines – 1150-10-099

The Granville West Latrines site (see Appendix A mapsheet 1 of 34) is located approximately 75 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct

and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Granville West Latrines site in relation to the Coffee Creek Road development.**

2.15 Australia-Sulphur Ditch House – 115O-10-107

The Australia-Sulphur Ditch House site (see Appendix A mapsheet 2 of 34) is located approximately 280 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Australia-Sulphur Ditch House site in relation to the Coffee Creek Road development.**

2.16 Dredge Yukon Gold #4 – 115O-10-108

The Dredge Yukon Gold #4 site (see Appendix A mapsheet 1 of 34) is located approximately 110 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further work is recommended at the Dredge Yukon Gold #4 site in relation to the Coffee Creek Road development.**

2.17 Australia-Sulphur Ditch Diversion 2 – 115O-10-119

The Australia-Sulphur Ditch Diversion 2 site (see Appendix A mapsheet 1 of 34) is located approximately 700 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the Australia-Sulphur Ditch Diversion 2 site in relation to the Coffee Creek Road development.**

2.18 South Fork Intake and Camp Building – 116B-01-009

The South Fork Intake and Camp Building site (see Appendix A mapsheet 1 of 34) is located approximately 700 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the South Fork Intake and Camp Building site in relation to the Coffee Creek Road development.**

2.19 South Fork Intake and Camp Outhouse – 116B-01-010

The South Fork Intake and Camp Outhouse site (see Appendix A mapsheet 1 of 34) is located approximately 700 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No further heritage resource work is recommended at the South Fork Intake and Camp Outhouse site in relation to the Coffee Creek Road development.**

2.20 South Fork Intake Electric Shovel 2 – 116B-01-015

The South Fork Intake Electric Shovel 2 site (see Appendix A mapsheet 1 of 34) is located approximately 700 m outside of the proposed ROW in an area with no proposed ground disturbance, and was not directly observed by Ecofor field crews during survey efforts. Therefore, it is assumed that the currently listed location is correct and the site will not be impacted by the construction of the Coffee Creek Road. **No**

further heritage resource work is recommended at the South Fork Intake Electric Shovel 2 site in relation to the Coffee Creek Road development.

3.0 Newly Documented Historic Period Sites

3.1 Hist 1 – Plywood Cabin

Newly documented Historic Period structure Hist 1 is a small plywood cabin with associated outhouse located approximately 60 m away (Photo 50, and Photo 51; see Appendix A mapsheet 22 of 34). A ladder and tree stand were also observed nearby (Photo 52). The cabin is fully within ROW, and measures approximately 5 x 5 m. Its door and single window are north-facing. A relatively recent looking stove pipe extends from the roof of the cabin. The cabin and outhouse are in good condition, but it is unclear whether they remain in active use. Based on the good condition of the cabin and outhouse, and potential active use status, **it is recommended that impacts to the structures be avoided during construction of the Coffee Creek Road. However, due to the relatively recent appearance of the structures, it is not necessarily recommended that they be considered for inclusion in the YHSI listing.**

3.2 Hist 2 – Remains of Possible Ice Fishing Shelter

Newly documented Historic Period structure Hist 2 consists of the highly degraded remains of a platform on skids that likely formed the base platform for an ice fishing shelter (Photo 53; see Appendix A mapsheet 21 of 34). It is located near the north bank of the Stewart River. Heavy cables, presumably used to drag the structure onto and off of the ice are fastened to the base of the platform frame (Photo 54). The platform is fastened with round wire-drawn nails, and the cable hardware appears to be of relatively modern design (Photo 55 and Photo 56). Structure Hist 2 is located well off of the proposed ROW (approximately 300 m south of proposed ROW; was recorded due to a chance encounter while moving from a helicopter landing zone to STL 5), so **no further heritage resource work is recommended in relation to the Coffee Creek Road development. However, while not the most significant structure, it may be of sufficient age to be considered for inclusion in the YHSI listing to document its presence in case the Hist 2 site area falls within the footprint of any future developments.**

3.3 Hist 3 – Modern Placer Mining Camp

Newly documented Historic Period site Hist 3 is a small placer mining camp consisting of a log cabin (good condition; relatively recent looking), trailers, a sluice plant, fuel tanks, and miscellaneous other historic debris (Photo 57, Photo 58, and Photo 59; see Appendix A mapsheet 22 of 34). The camp area measures approximately 125 x 75 m, with an additional scatter of fuel containers, buckets, and other historic refuse located approximately 220 m north along the proposed ROW. There is significant existing ground disturbance in the area, and the trailers, a sluice plant, fuel tanks are in an advanced state of disrepair, but the log cabin is in relatively good condition (appears quite recently built). With the exception of the sluice plant, all observed Historic materials are located outside of proposed ground disturbance areas. The sluice plant is located approximately 15 m west of the proposed centerline in a ground disturbance zone. Based on the location of all significant historic features, other than the sluice plant, outside of the nearby proposed ground disturbance areas no impacts are anticipated. The sluice plant, however, may be at risk of being impacted. **While none of these site features currently carry Historic designations, it is recommended that they be avoided by the Coffee Creek Road development. Moreover, if further information becomes available about the age and history of this site it is recommended that the cabin, and possibly the sluice plant be considered for listing in the YHSI registry.**

3.4 Hist 4 – Modern Placer Mining Camp with Abandoned Equipment and Ruined Log Cabin

Newly documented Historic Period site Hist 4 is a small placer mining camp consisting of several structures including a ruined log cabin, two modern plywood cabins, an equipment shed, a large upright metal cylinder, a D8H bulldozer, a military GMC M135 2.5 ton truck, and plentiful associated modern refuse (fuel containers, hoses, steel barrels, buckets, refrigerators, and general trash; Photo 60, Photo 61, Photo 62, Photo 63, Photo 64, Photo 65, and Photo 66; see Appendix A mapsheet 25 of 34). The camp area measures approximately 170 x 50 m. There is significant existing ground disturbance in area, including levelling and associated push piles; no intact landforms were observed. The bulldozer, equipment shed, one plywood cabin, the truck, and miscellaneous refuse are located within a proposed ground disturbance area. **While none of these site features currently carry Historic designations, it is recommended that they be avoided by the proposed Coffee Creek Road development. However, care should be taken to not impact any site features currently outside the disturbance zone while avoiding those currently within the proposed ground disturbance area. Moreover, it is recommended that the ruined cabin be considered for listing in the YHSI registry.**

3.5 Hist 5 – Modern Camp

Newly documented Historic Period site Hist 5 is a single “ATCO type” camp trailer (Photo 67; see Appendix A mapsheet 26 of 34). The trailer is boarded up, but in moderate condition. It is considered to be quite modern, and is situated approximately 15 m west of proposed ground disturbance area, where it should not be disturbed by the proposed development. However, **in the case where the ROW is modified in this area in such a way that it may impact the site, avoidance is recommended.**

3.6 Hist 6 – Modern Cabin and Camper Trailer

Newly documented Historic Period site Hist 6 consists of a plywood clad cabin and camper trailer (Photo 68; see Appendix A mapsheet 26 of 34). The camper trailer has a Yukon license plate dates 1974. As such, the site is considered to be quite modern, and is situated approximately 170 m northwest of the nearest proposed ground disturbance area, where it should not be disturbed by the proposed development. However, **in the case where the ROW is modified in this area in such a way that it may impact the site, avoidance is recommended.**

RECOMMENDATIONS

Fieldwork conducted during this HRIA included surficial survey along the entire proposed Coffee Creek Road ROW by foot, truck, UTV, and helicopter. Based on the results of this survey, 11 shovel test locations were assessed, leading to the identification of three new archaeological sites. Moreover, the locations of 20 YHSI listed historic sites were verified to determine whether they may be impacted by the proposed development, and two previously undocumented Historic Period structures were recorded.

Heritage resource management recommendations from this work are as follows:

- 1) **STL 3/KjVj-2** – This site is a small lithic site identified in a single positive shovel test. Additional bracketing shovel tests around the positive test, and across the greater landform, did not yield additional artifacts. Upon the identification of the site, Ecofor staff worked directly with the road engineer and construction crew to establish a 30 m buffer around the KjVj-2 site area and reroute the Coffee Creek Road ROW into an area of low heritage resource potential located immediately east of the buffered site area. Therefore, **no further heritage resource work is recommended at STL 3/KjVj-2 in relation to the proposed Kaminak Coffee Creek Road development.** However, if

future developments have the potential to impact similar landforms in the vicinity further assessment is recommended prior to the commencement of ground disturbing activities.

- 2) **STL 7/KgVi-1** – This site is a subsurface isolated find of a single lithic artifact (a chert scraper). Additional bracketing shovel tests around the positive test, and across the greater landform, did not yield additional artifacts. The positive shovel test was flagged in the field with a 30 m avoidance buffer pending a response from Yukon Heritage. However, based on the results of the bracketing tests around the positive shovel test, additional testing throughout the STL 7 area, and isolated find classification of KgVi-1, the potential for the presence of additional heritage resource materials at this locality is considered to be low. Therefore, **it is recommended that the 30 m buffer around the positive test be disregarded, and that no further heritage resource work is recommended at STL 7/KgVi-1 in relation to the proposed Kaminak Coffee Creek Road development.**
- 3) **STL 9/KfVi-16** – This site is a Precontact Period First Nations campsite, identified through a small assemblage of lithics and faunal materials in 10 positive shovel tests. Shovel test spacing was quite tight at 1-2 m, and one 1 x 1 m evaluative test unit was also excavated. The site area was flagged in the field with a 30 m avoidance buffer with the exception of an area on the south edge, which was too steep to negotiate, pending a response from Yukon Heritage. However, based on the results presented above and high level of testing conducted during this HRIA, the potential for the presence of additional significant heritage resource materials at this locality is considered to be low. Therefore, **it is recommended that the 30 m buffer around the positive test be disregarded, and that no further heritage resource work is recommended at STL 9/KfVi-16 in relation to the proposed Kaminak Coffee Creek Road development.**
- 4) **YHSI Sites** – No conflicts were found between the locations of the 20 assessed YHSI sites during the fieldwork for this HRIA. Therefore, **no further heritage resource work is recommended in relation to any YHSI sites in the vicinity of the proposed Kaminak Coffee Creek Road development.**
- 5) **Hist 1** – This site is a small plywood cabin with associated outhouse. A ladder and tree stand were also observed nearby. The cabin is fully within ROW, and both it and the outhouse are in good condition, but it is unclear whether they remain in active use. Based on the good condition of the cabin and outhouse, and potential active use status, **it is recommended that impacts to the structures be avoided during construction of the Coffee Creek Road. However, due to the relatively recent appearance of the structures, it is not necessarily recommended that they be considered for in the YHSI listing.**
- 6) **Hist 2** – This site consists of the highly degraded remains of a platform on skids that likely formed the base platform for an ice fishing shelter. It is located well off of the proposed ROW (approximately 300 m south of proposed ROW; was recorded due to a chance encounter while moving from a helicopter landing zone to STL 5), so **no further heritage resource work is recommended in relation to the Coffee Creek Road development. However, while not the most significant structure, it may be of sufficient age to be considered for inclusion in the YHSI listing to document its presence in case the Hist 2 site area falls within the footprint of any future developments.**

- 7) **Hist 3** – This site is a small placer mining camp consisting of a log cabin (good condition; relatively recent looking), trailers, a sluice plant, fuel tanks, and miscellaneous other historic debris. With the exception of the sluice plant, all observed Historic materials are located outside of proposed ground disturbance areas. The sluice plant is located approximately 15 m west of the proposed centerline in a ground disturbance zone. Based on the location of all significant historic features, other than the sluice plant, outside of the nearby proposed ground disturbance areas no impacts are anticipated. The sluice plant, however, may be at risk of being impacted. **While none of these site features currently carry Historic designations, it is recommended that they be avoided by the Coffee Creek Road development. Moreover, if further information becomes available about the age and history of this site it is recommended that the cabin, and possibly the sluice plant be considered for listing in the YHSI registry.**

- 8) **Hist 4** – This site is a small placer mining camp consisting of several structures including a ruined log cabin, two modern plywood cabins, an equipment shed, a large upright metal cylinder, a D8H bulldozer, a military GMC M135 2.5 ton truck, and plentiful associated modern refuse. The bulldozer, equipment shed, one plywood cabin, the truck, and miscellaneous refuse are located within a proposed ground disturbance area. **While none of these site features currently carry Historic designations, it is recommended that they be avoided by the proposed Coffee Creek Road development. However, care should be taken to not impact any site features currently outside the disturbance zone while avoiding those currently within the proposed ground disturbance area. Moreover, it is recommended that the ruined cabin be considered for listing in the YHSI registry.**

- 9) **Hist 5** – This site is a single “ATCO type” camp trailer. It is considered to be quite modern, and is situated approximately 15 m west of proposed ground disturbance area, where it should not be disturbed by the proposed development. However, **in the case where the ROW is modified in this area in such a way that it may impact the site, avoidance is recommended.**

- 10) **Hist 6** – This site consists of a plywood clad cabin and camper. The camper trailer has a Yukon license plate dates 1974. As such, the site is considered to be quite modern, and is situated approximately 170 m northwest of the nearest proposed ground disturbance area, where it should not be disturbed by the proposed development. However, **in the case where the ROW is modified in this area in such a way that it may impact the site, avoidance is recommended.**

- 11) **Negative shovel test areas – No further heritage resource work is recommended for all negative shovel test areas.**

- 12) **No further heritage resource work is recommended in all other areas that were surveyed and not tested due to being evaluated as having low heritage resource potential.**

If any additional development areas are added to the project, then those new areas should also be reviewed for possible impacts to heritage resources. This follow-up heritage review maybe conducted though desktop overview and/or field study. Moreover, although all efforts were made to make this assessment as comprehensive as possible, chance finds of heritage resource materials still may be made during construction. If such finds are made, all work in the affected area should cease until staff at the Yukon Government Heritage Unit can be contacted for further direction. Final project reporting, to meet Yukon Heritage Permit requirements, is pending and will be completed prior to March 31, 2017.

[signature redacted]

Signed:

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References Cited:

MacMillan, Jodie
2015 Heritage Resources Overview Assessment for a Proposed Access Road Corridor to the Coffee Property. Report prepared for Kaminak Gold Corporation.