



Yukon Placer Mining Best Management Practices for Heritage Resources

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Edition 1

Yukon
Tourism and Culture

DISCLAIMER

Nothing in the Yukon Government Mineral Exploration Best Management Practices for Heritage Resources documents, references, etc., shall be construed as waiving compliance with regulatory requirements imposed by law. It remains the responsibility of the proponent to satisfy themselves that the measures adopted in the specific instance are appropriate to the situation and satisfy all legal requirements within the jurisdiction.

Specific best management practices for specific problems cannot be given since solutions will, of necessity, be site and issue specific. Narrative BMPs are given indicating the type of measure which may be useful.

This guide is intended to provide users with up-to-date information about best management practices for heritage resources the Yukon Landscape but these guidelines should not be considered as comprehensive. There are both known and unknown sources of data which have not yet been incorporated and topics which have not yet been treated or addressed. These topics and data will be incorporated and new versions of the documents uploaded as time and resources permit. By their very nature many specific BMPs soon become obsolete as “better” BMPs become available but the concept and the identified objectives behind the examples remain valid.

Any comments, questions, or suggestions regarding the content of this document may be directed to::

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Whitehorse, Yukon Y1A 2C6
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All photos courtesy of Government of Yukon except as otherwise noted.



Upright posts are remains of an elevated platform cache

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Fencing remains around an abandoned garden



Midden at Dominion Creek

1. Objectives

- To protect and manage historic sites and resources, and to protect burials outside of known cemeteries.
- To provide information and assistance to the Yukon placer mining industry to ensure the protection of Yukon's heritage.



Historic fence graves.

2. Context of Historic Resource Protection and Management

Heritage or historic resources exist throughout the Yukon landscape in all terrains including mountain tops, and even under water. Remains of built heritage in many instances are fragile due to their age and composition, which is frequently wood or other organic materials.

Archaeological remains that date to the historic period or that are thousands of years old are often buried in only a few centimetres of soil. Even minor disturbance of the ground surface can impact on archaeological sites. All heritage resources are vulnerable to looting or unauthorized collection and increased activity in a previously isolated area may see the loss of irreplaceable objects that are part of Yukon's history.

Palaeontological resources are the fossil remains of plants and animals. Because much of central and northern Yukon were unglaciated during the Ice Ages, the frozen organic rich sediments ("black mucks") in these regions preserve some of the most important North American remains of Pleistocene species such as mammoth, horse, and bison. Yukon's bedrock also contains fossils, from dinosaur bones and footprints, to leaf impressions and trilobites.

Inventories of historic resources are lacking for many regions of the Yukon. Many remote areas have never been surveyed and the historic resources are not adequately documented. Members of Yukon's placer mining industry can assist in heritage protection by becoming informed about heritage resource identification and by implementing site avoidance, buffering and reporting when heritage resources are encountered to help preserve the evidence of Yukon's history. By adopting historic resources "Best Management Practices" Yukon's placer mining industry can assist in the protection and appreciation of Yukon's rich heritage.

3. Legislative Context

Historic resources are protected from disturbance under the *Yukon Historic Resources Act* and Yukon Archaeological Sites Regulation. In the Yukon, the fossil remains of plants and animals are also protected under the *Historic Resources Act*. The Government of Yukon is responsible for managing historic sites on non-settlement land and outside of national parks. No one may search for, investigate, excavate, disturb or otherwise alter a historic site on Yukon lands except in accordance with a permit under the Yukon Archaeological Sites Regulation. No objects may be removed from a historic site without a permit under the Yukon Archaeological Sites Regulation. Permits are issued only to qualified researchers (usually professional archaeologists).

Placer Mining activities in the Yukon are regulated under the *Placer Mining Act* and the Placer Mining Land Use Regulation (O.I.C. 2003/59) and are reviewed under the *Yukon Environmental and Socioeconomic Assessment Act* (YESAA). For the review, the proponent may be required to provide adequate information to allow the evaluation of the likelihood and significance of adverse effects of the project on heritage resources, and identify proposed mitigation measures. Areas which have not previously been mined and/or landscapes with known high archaeological values, such as southwestern Yukon would be of particular concern for new placer projects. Contact the Government of Yukon - Heritage Resources Office for assistance in determining any heritage resources impacts as a result of your project.



Lone Star stamp mill at Bonanza Creek



Pumphouse, Hunker Creek.

4. Potential Impacts to Heritage Resources as a Result of Placer Mining Activities



Results of stripping and trenching activities in an operating placer mine.
(Photos courtesy of Mineral Resources Branch)

Stripping and Trenching

In a modern placer mining operation, stripping and trenching are the principal means by which ground overlying the gold-bearing deposits are removed, and the sediments containing placer gold are recovered for sluicing. The removal of vegetation and sediment layers will impact substantially both above ground and buried (archaeological and palaeontological) heritage resources.

Road and Access Development/Upgrading

Development of roads and trails and access upgrading, which involves widening or realigning of an existing route, are activities which all have the potential to substantially impact both above ground and buried (archaeological and palaeontological) heritage resources. The impacts will increase proportionally to the location of the access and its extent. Access routes are frequently situated on flat, well drained benches, ridges and other elevated features. These locations also have the highest potential for heritage values to be present. Access constructed on side-slopes utilizing cut-and-fill methods are of less concern for heritage resource impacts.



Access roads and trails and stream crossings (photos courtesy of Mineral Resources Branch)

Camps and Infrastructure

Placer mining camps and other infrastructure will likely result in subsurface ground disturbance. Ideally camps should be located in existing clearings or former camp sites whenever possible, and where they can be accessed by existing transportation networks.



(Photos courtesy of Mineral Resources Branch)

5. Placer Mining Best Management Practices for Heritage Resource Protections

Potential Impacts on Heritage Resources

Activity	Recommended Actions
General and project planning	<ul style="list-style-type: none"> • Obtain information on location heritage sites (historical, archaeological and palaeontological) and grave sites in the project area from Government of Yukon, and First Nations if project is on settlement lands. • Heritage sites are to be avoided and buffered from any disturbance. A minimum 30 m buffer is required. • Inform crews on laws protecting Yukon heritage resources – no disturbance is permitted of heritage sites and objects may not be removed from heritage sites. Government of Yukon publication “Handbook for the Identification of Heritage Sites and Features” can assist in identifying heritage features and sites on the land, contributing to their preservation and protection (http://www.tc.gov.yk.ca/pdf/publications_heritagehandbook.pdf) • Under the Placer Mining Land Use Regulation, newly discovered heritage sites and objects must be reported to the Chief of Mining Land Use. Palaeontological heritage objects may be reported seasonally over the lifespan of a project. • Human remains found outside of a recognized burial site must be reported first to the RCMP. Please refer to Guidelines Respecting the Discovery of Human Remains and First Nation Burial Sites in the Yukon for additional information (http://www.tc.gov.yk.ca/pdf/respecting_guidelines.pdf)

Activity	Recommended Actions
Camps and clearings	<ul style="list-style-type: none"> • When possible, locate camps in existing cleared areas or former camp sites. • Locate camps where they can be accessed by existing road and trail networks. • Locate camps and associated facilities at ideally 100+ m from water bodies. A majority of heritage sites are located within 100 m of water. • Reconnoitre area of new clearings to ensure that no heritage sites or features are present.
Access roads, trails and off-road trail use	<ul style="list-style-type: none"> • Use existing access and trails whenever possible. • Reconnoitre all access and trail routes to ensure surface heritage sites and features (camps, caches, graves) are not impacted. Government of Yukon publication “Handbook for the Identification of Heritage Sites and Features” can assist in identifying heritage features and sites on the land (http://www.tc.gov.yk.ca/pdf/publications_heritagehandbook.pdf) • When possible, situate access roads and trails 100 m away from streams, rivers and other water bodies, and 30 – 60 m back from the edge of terraces, ridges and other elevated land forms as these are areas of high heritage potential. • If possible, stream crossings should be minimized. • Plan to undertake a heritage resource impact assessment in advance of significant access development (+ 2 km). Heritage assessment ideally should be part of route planning. Contact Yukon Government Heritage Resources for assistance in identifying areas of concern and assessment scope.

Activity	Recommended Actions
Trenching and stripping	<ul style="list-style-type: none"> • Trenching and stripping activities have the potential to disturb both surface and buried heritage resources. • If possible, trenching and stripping should avoid areas of high heritage potential (edges of defined terraces or ridges, for example, or other lookout settings); trenching or stripping on side slopes has less likelihood of impacting heritage resources.



Winch



Cabin on Hunker Creek

6. Definitions

Heritage or historic resources as defined in legislation include historical, archaeological and palaeontological sites and resources. Historic resources are abandoned sites and objects of greater than 45 years in antiquity. Cabins, caches, graves, brush camps, and other man-made structures, features or objects are the most readily recognized historic resources. Historic human remains and burials are protected under the *Historic Resources Act* as well.

Archaeological sites and resources may be historic or may date to before European contact. Prehistoric archaeological resources may be found on or under the ground surface, and generally consist of the remains of ancient camps, hearths, stone tools and debris.

Palaeontological resources are fossil and other remains of extinct or prehistoric plants and animals. These include tusks of woolly mammoths, bones of ancient horse, bison and other ice age fauna as well as fossil remains and traces of plants, vertebrate and invertebrate animals.



Log cabin in the Klondike gold fields



A collection of artifacts made from native copper (float copper) nuggets.



Woolly mammoth tooth recovered in frozen Ice Age deposits at a placer mine.



Boiler and steam points at a historic placer mining camp.

7. Identifying Areas of High Heritage Potential

Based on known patterns of prehistoric and historic land use, certain terrain types, localities and landscape features can be identified as likely locations for archaeological sites. Generally, level, well-drained ground in proximity to water bodies, stream courses and wetlands, prominent lookout situations on terraces, ridges and knolls are considered to be of high heritage potential. In parts of the Yukon, high potential localities may include also shorelines of pro-glacial and neo-glacial lakes, meltwater channels, ancient river terraces and abandoned drainages.



Outside of the major river valleys, the Klondike Goldfields and adjacent regions of unglaciated north-central Yukon are dominated by deeply incised narrow V-shaped valleys and rolling hills. Travel and pursuit of game is more difficult in this terrain and generally these steep-walled valleys were not as heavily utilized by hunters in the past as were the broad valleys and wide, undulating uplands typical of much of southwest Yukon, which provided much easier access.



Of concern specifically for placer mining activities are the heritage resources preserved in often deeply buried frozen organic sediments of unglaciated northern and central Yukon. The types of deposits, including the black mucks that overlie the gold-bearing gravels in the Klondike Gold fields, can preserve exceptional evidence of Ice Age animals and environments. As modern rivers cut down through the sediments, the frozen silts containing bone and plant materials are exposed. Placer mining artificially accelerates the exposure of these deposits and some of Yukon's most significant Ice age finds of fossil and mummified animal remains have resulted from the activity of placer miners



Narrow, steep-sided valleys typical of the Klondike gold fields



Foreleg of mummified Ice Age horse dating to 26,000 years ago found at Last Chance Placer Mine.



Various fossil bone specimens

8. Obtaining Information about Archaeological, Palaeontological and Historic Sites

Information on the location of known heritage sites and resources can be obtained from the Government of Yukon Heritage Resources Unit and from First Nation heritage offices. Coordinates provided for many sites may not be precise, however, as information may have been gathered over several decades and coordinates were obtained prior to precision GPS. Coordinates for any given site might vary by up to 200 metres. Site locations are provided as point data, usually marked at the centre of a site. Sites vary in extent and size however, and information regarding this is located in the site record. You should pay particular attention to this if you are planning any activities in the vicinity of an heritage site. Development activities are not permitted within 30 metres of a known archaeological or historic site or a burial site.



Graves on Dominion Creek



Collapsed platform cache at an old mine camp



Foundation with stone fireplace. Eldorado Creek



Mammoth tusk recovered at a placer operation. A historic dredge can be seen in the background

9. Reporting

Historic and Archaeological Sites

If a historic or archaeological site or resource is discovered, work at this location must be halted and the site marked or flagged and buffered from any further disturbance by at least 30 m.

For Mining Land Use Class 2 notification or Class 3 or 4 approval, the section on historic objects and burial sites in the Mining Land Use Regulation and permits from Mining Land Use and the Water Board will detail the manner of reporting.

Generally, for newly discovered sites and resources, the following information is recorded:

- GPS location: latitude/longitude or UTM coordinates and NAD (27 or 83).
- Estimate of site or feature extent (area)
- Brief description of setting and access to assist others in locating the site.
- Brief description of site features (e.g., cabin with collapsed cache and scatter of household goods).
- Photographs.

Report heritage sites and features to:

Chief of Mining Land Use
Government of Yukon
Box 2703 (K-9)
Whitehorse, Yukon Y1A 2C6
Phone: (867) 456-3822
Fax: (867) 456-3899



Dam at Adams Gulch

For Non-Mining Projects:
Heritage Resources - Department of Tourism and Culture
Government of Yukon Box 2703,
Whitehorse, Yukon Y1A 2C6
Phone: (867) 667-5983 or toll-free 1-800-661-0408
Email: ruth.gotthardt@gov.yk.ca

Palaeontological Resources

Palaeontological resources present a special case for mining land use activities – particularly those activities impacting the frozen muck deposits in unglaciated regions of central and northern Yukon. Fossil remains can be found in abundance in some areas, and for some specimens, preservation may be exceptional in the form of frozen, mummified remains. In the event that any fossil bone or mammoth tusk is uncovered, collect the fossil, set it aside and contact Yukon Palaeontologist. Fossils that are set aside should be kept safe from the weather (out of the rain and direct sunshine), preferably in a storage shed. Collect as much of the animal as can be located and try to verify whether it is a single intact skeleton or whether multiple animals are represented.



Clockwise: Mammoth femur recovered at Dominion Creek
Articulated remains of juvenile mammoth found at Gold Run Creek
(Ross Mining), dating to 17,000 years ago. Tusk and bison remains
from Dominion Creek. Lindow Creek claim.

In the event that a single intact skeleton is found, or mummified remains which preserve the hide of flesh of the animal, avoid further disturbance as these finds are of considerable scientific importance. Protect or remove the remains (with intact surrounding sediments) to the best of your ability and contact the Yukon Palaeontology Office.

Report palaeontological resources to:

Yukon Palaeontology
Department of Tourism and Culture
Government of Yukon
Box 2703, Whitehorse, Yukon Y1A 2C6
Phone: (867) 667-8089
or toll-free 1-800-661-0408
Email: grant.zazula@gov.yk.ca

Or: Chief of Mining Land Use who will contact Yukon Palaeontology



Tail hair (below) of mummified Ice Age horse dating to 26,000 years ago found at Last Chance Creek.



YG Palaeontology Step student Shannon Marks and Bernard Johnson packing fossil bone at Eldorado Creek

10. References: Legislation, Policy and Standards for Historic Site Conservation and Management

Yukon Government Links

Heritage Resources Unit – Archaeology Program
<http://www.tc.gov.yk.ca/76.html>

Heritage Resources Unit – Palaeontology Program
<http://www.tc.gov.yk.ca/81.html>

Historic Sites Unit
<http://www.tc.gov.yk.ca/historicsites.html>



Stone adzes

Policy and Guidelines

Guidelines Respecting the Discovery of Human Remains and First Nation Burial Sites in the Yukon:
http://www.tc.gov.yk.ca/pdf/respecting_guidelines.pdf

Operational Policy for Heritage Resources Management on Yukon Lands:
http://www.tc.gov.yk.ca/pdf/Heritage_Resources_Operational_Policy.pdf

Handbook for the identification of Heritage Sites and Features
http://www.tc.gov.yk.ca/pdf/publications_heritagehandbook.pdf

Parks Canada - Standards and Guidelines for the Conservation of Historic Places in Canada http://www.historicplaces.ca/nor-sta/pdf/sgnld_e.pdf

Government of British Columbia Archaeological Impact Assessment Guidelines
http://www.tsa.gov.bc.ca/archaeology/docs/impact_assessment_guidelines/index.htm

Legislation

Yukon Historic Resources Act
http://www.tc.gov.yk.ca/pdf/historic_resources_act.pdf

Yukon Archaeological Sites Regulation
http://www.tc.gov.yk.ca/pdf/oic2003_073.pdf

Yukon Environment and Socioeconomic Assessment Act
<http://www.yesab.ca/>

Placer Mining Land Use Regulation
http://www.gov.yk.ca/legislation/regs/oic2003_059.pdf



Unfinished stone spear point