

**Archaeological Inventory and
Overview Assessment Refinement
Ministry of Forests, Morice Forest District
Houston, British Columbia**

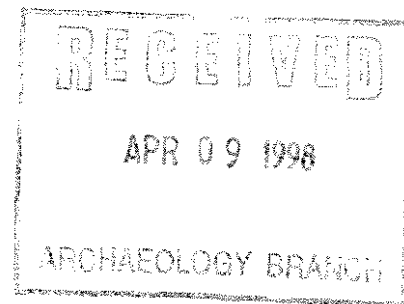
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Abstract

The following report details the results of an Archaeological Inventory and Overview Assessment Refinement prepared by I. R. Wilson Consultants Ltd. for the Ministry of Forests, Morice Forest District, Houston, British Columbia. The resulting AOA model is intended to help enable Ministry and industry staff to make appropriate decisions regarding requirements for future archaeological impact assessment (AIA) studies for proposed forestry developments.

The overview assessment refinement utilizes data from the analysis of previously recorded sites, the results of previous archaeological survey in the study area, interviews conducted with *Nedo'ats* (Old Fort) community members, and an intensive archaeological inventory study program. The AIS field program was designed to target areas of designated *high*, *moderate* and *low* archaeological potential, with a specific focus on areas deemed moderate and low or unknown. A total of four archaeological sites, GeSm 1, 2, 3 and GbSr 1, as well as a number of post-1846 culturally modified tree sites were recorded during the AIS programs.

The final overview model establishes a four zoned potential rating system, with designated *high archaeological potential zones*, *moderate archaeological potential zones*, *low archaeological potential zones* and a *CMT potential zone*. The *CMT potential zone* addresses those areas not covered by high or moderate, but where CMTs, based on the current data and the results of the AIS, tend to be located. It is anticipated that when more archaeological data become available, the model can be easily refined to incorporate new site information and locations. The overview model concludes by making recommendations regarding the need for archaeological impact assessments in the four designated potential zones.

Acknowledgements

I. R. Wilson Consultants Ltd. would like to thank Colleen Jones (Shamaya Consulting), Mike Buirs, Doris Munger and Jim Guido (Ministry of Forests, Morice Forest District) and Mary Ann Poirier (*Nedo'ats*, Old Fort) for their invaluable assistance during the various stages of the Morice Archaeological Inventory and Overview Assessment Refinement. We would also like to thank all the community members from Old Fort who agreed to meet with us and share information regarding archaeological sites and use in Old Fort traditional territory. A special thanks to all those who stopped by the Granisle Hotel during the interviews, and especially to Mabel Munger who provided home cooked lunches for all who attended. Many thanks to the community members from the Wet'suwet'en First Nation, without whom the Owen-McBride inventory study could not have been successful. We would also like to thank Northwood Pulp and Timber Limited and Houston Forest Products for providing detailed forest development maps of the project areas. Finally, thanks to all those who attended the Archaeological Inventory Study Project Results Meeting in Houston in early March.

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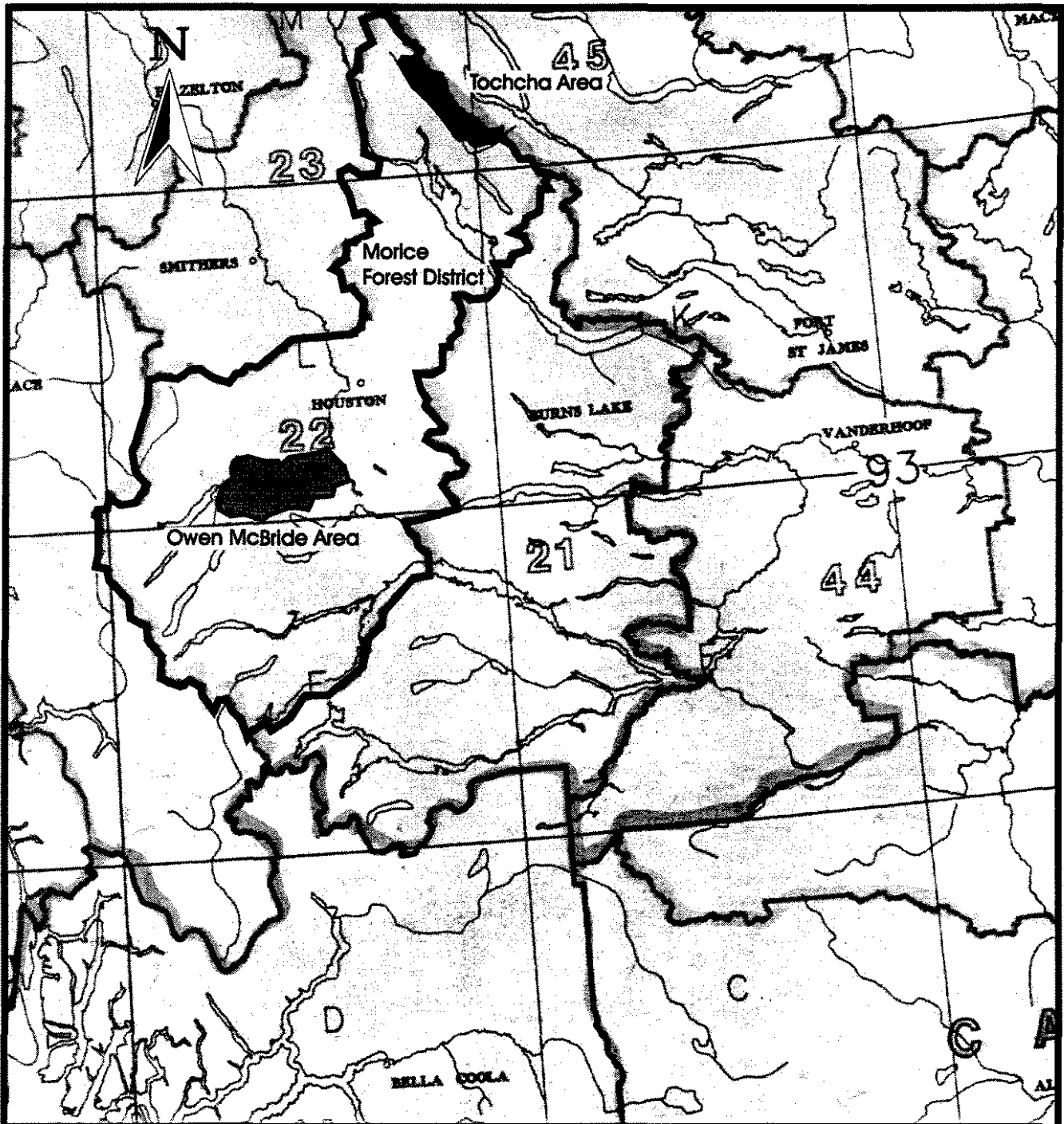
- APPENDICES:**
- A. Information Sharing Agreement**
 - B. Glossary of Terms**
 - C. Model Development Compiled Data**

**Archaeological Inventory and
Overview Assessment Refinement
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Houston, British Columbia**

1. Introduction

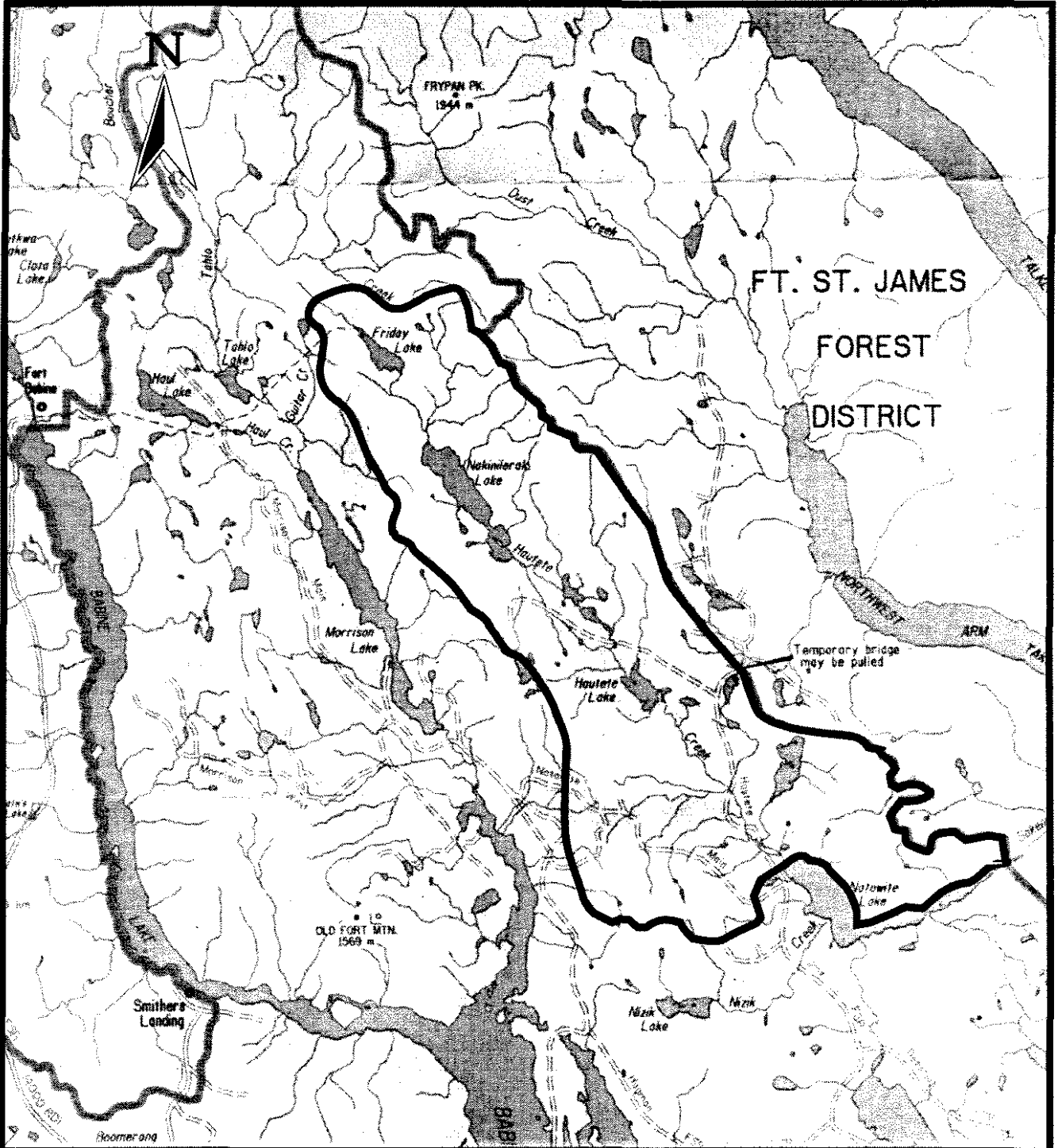
The following study was prepared at the request of the Ministry of Forests, Morice Forest District. The study is an archaeological inventory and overview assessment refinement of archaeological potential in the Morice Forest District (Figures 1-3). The project is intended to be consistent with Archaeology Branch guidelines for archaeological overview assessments. The purpose of this study is to refine and test the Archaeological Overview Assessment (AOA) model for the Morice Forest District and provide written and mapped information on archaeological resource potential as well as information on the locations of known archaeological sites. It is intended to help enable Ministry and industry staff to make appropriate decisions regarding requirements for future Archaeological Impact Assessment (AIA) studies for proposed forestry developments.

This report makes use of information gathered during interviews with First Nation community members. However, at the request of the interviewees, site specific data and site locations will remain confidential and are not published in this report. Only information on general site types and their geophysical location (i.e. forest cover, biogeoclimatic zone, elevation, proximity to water and aspect) were utilized in refining the AOA model. Thus, it is only the model that is presented here; no information gathered during interviews is presented. It should be noted that this report is not designed to compile detailed traditional use of the project area by First Nations peoples. First Nations' interviews were intended to address only ethnographic use relevant to potential archaeological site locations in the IRM project areas.



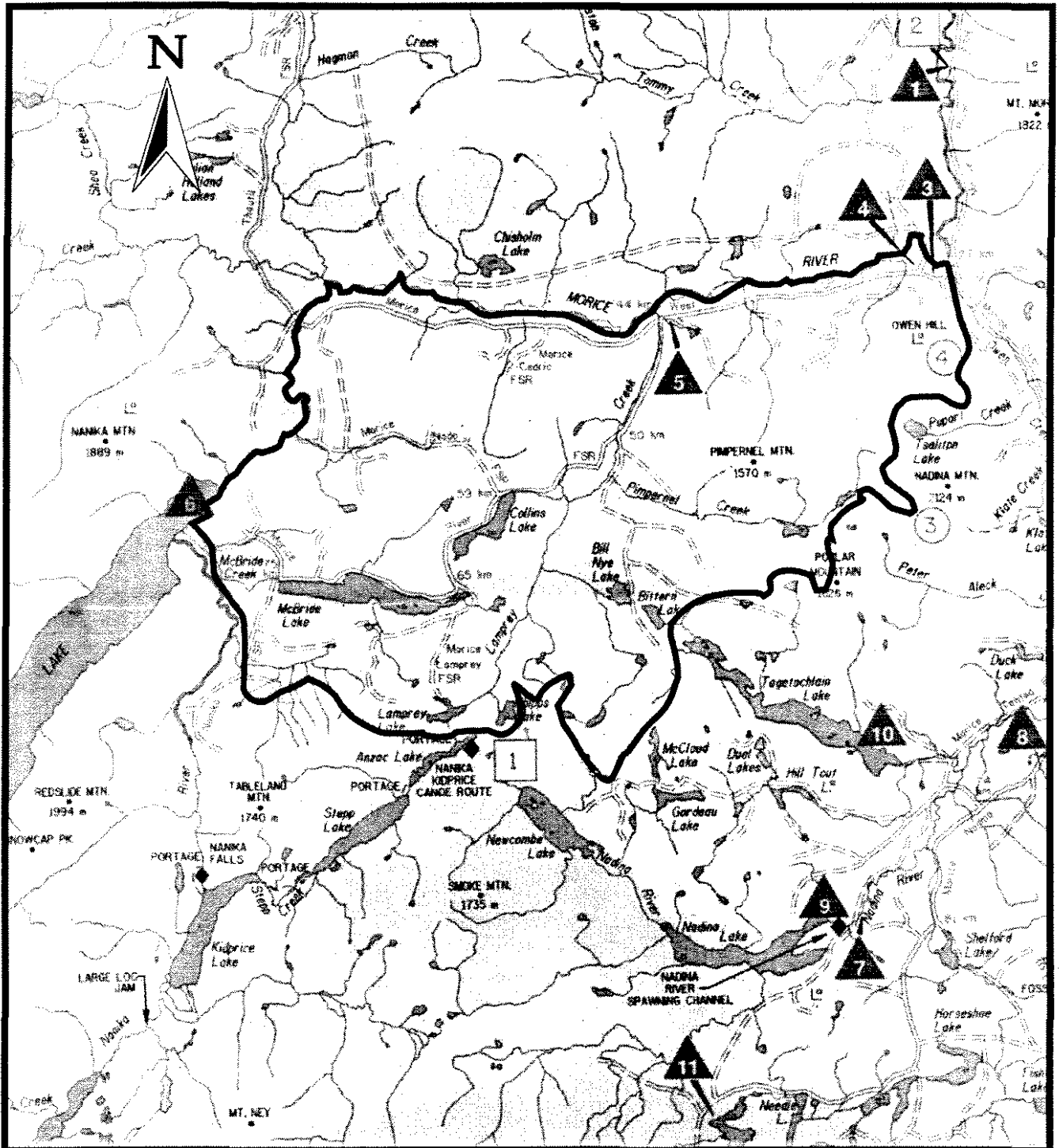
 Project Area

Project: Morice AOA
 Title: Project Locations
 Figure: 1
 Scale: 1:2,000,000



— Project Boundary

Project: Morice AOA
 Title: Tochcha Project Area
 Figure: 2
 Scale: 1:300,000



— Project Boundary

Project: Morice AOA
 Title: Owen McBride Project Area
 Figure: 3
 Scale: 1:300,000

Heritage sites and objects on private and Provincial Crown land in British Columbia are protected under the Heritage Conservation Act which is administered by the Archaeology Branch of the Ministry of Small Business, Tourism and Culture. Heritage resources specifically protected by the Act include Provincial heritage sites, burial places with historical or archaeological value, aboriginal rock paintings or carvings, sites with evidence of human habitation or use before 1846 and heritage wrecks. The Lieutenant Governor in Council may also make regulations to define the extent of types of sites protected by the Act.

Archaeological and historical sites are places that indicate past human occupation or use. Archaeological sites are those which can be investigated primarily by archaeological methods such as excavation whereas historical sites can be studied not only by archaeological methods but also through the analysis of written records.

Heritage resources can be prehistoric in age (the time before European arrival) or they can be historic. They can be of Native Indian, European, Euro-Canadian or other ethnic affiliation. Ethnographic heritage sites are locations reported as having been used or occupied by Native Indian people in the past which may or may not contain any physical evidence for such an occupation or use. A reported ethnographic site found to contain physical evidence changes the site to an archaeological site enhanced with ethnographic information. Ethnographic sites with no corroborative physical evidence are not treated as heritage sites according to present heritage legislation. However, ethnographic sites require proper management as a responsibility of developers.

There are usually three stages to the heritage resource impact assessment and review process including overview assessment, detailed impact assessment and impact mitigation. The overview assessment is intended to identify and assess heritage resource potential or the likelihood that sites are present. Generally, overview assessments result in the "rating" of study or development areas as possessing either high, moderate or low archaeological potential. An archaeological inventory study (AIS) can be used as a test of an overview study. The objectives of the detailed impact assessment are the identification and evaluation of heritage resources within a proposed development area and also the assessment of possible impacts by the development on these sites. Impact mitigation is any course of

action that results in the reduction or the elimination of the adverse impacts of a development. Mitigation usually involves site protection, project redesign or systematic data recovery, normally involving archaeological excavation. The present study was designed to satisfy the objectives of an overview assessment.

In summary, the goals of the study are to:

- 1) Produce a report outlining the history, prehistory, ethnohistory, geographical location, known archaeological sites, previous archaeological surveys and archaeological work undertaken within the vicinity of the study area;
- 2) Evaluate the criteria used to generate the archaeological potential model and refine potential rankings by means of mapping at a 1:20,000 scale;
- 3) Examine operational definitions of potential used in the original overview model by reassessing known site variables to determine their appropriateness in operational and management decisions regarding the need, scope and intensity of possible impact assessment programs for forestry operations;
- 4) Enhance the existing model through inclusion of First Nations input regarding site locations; and
- 5) Assess the model through a detailed field inventory program of the Tochcha and Owen-McBride IRM Units.

In short, the existing model was refined and tested by office and field procedures to assist Ministry staff in making better management decisions at the planning stage.

2. Data Gaps

Three broad areas of data gaps are addressed in the current program and are listed below. By refining the archaeological potential model, an attempt has been made to address some of these data gaps. However, the results of this study represent only a fraction of the work needed to fill in these gaps. A recent study suggests a minimum of 9,164 ha need to be surveyed in the Morice District to address deficiencies in the archaeological data base (Franck 1997:9). Since the current program focuses only on a fraction of this area, significant data gaps undoubtedly still remain.

To fill the data gaps, Franck (1997) recommends a series of requirements for future survey in the Morice Forest District. Recommendations include that survey should be stratified by biogeoclimatic zones, which in effect relates to elevation, vegetation, forest cover and type; surveys should be conducted away from major river and lakeshores, ideally at a distance greater than 4 km; and surveys should be intensive in nature and should include systematic ground transects, shovel tests and screening of all materials (Franck 1997:10).

2.1 Criteria for Assessment of Potential

The first data gap addressed in the current program involves the identification of precise criteria for assessing archaeological potential, specifically the identification of “buffer zone” width around geographic features. The existing model, originally designed for the Vanderhoof Forest District (Carlson 1996), uses a relatively limited set of variables to determine potential. These variables include 1) distance from past or present water bodies (big lake, small lake, pond, marsh/meadow, primary, secondary or tertiary stream); 2) aspect (cardinal direction of shoreline); 3) proximity to known archaeological sites; and 4) proximity to trails. Informant information was not incorporated into the original potential model.

A number of relevant or potentially relevant criteria for assessing archaeological potential are not included in Carlson’s (1996) list of variables. Most important are slope, vegetation and/or forest cover, elevation, biogeoclimatic zone, topographical features, soil drainage, ungulate capability and proximity to resources such as naturally occurring raw lithic materials. A second overview conducted for the Vanderhoof region (Brolly *et al.* 1995) attempts to use a number of these variables in predicting archaeological potential for the Land and Resource Management (LRMP) subregion. Potential assessment, however, was conducted at a scale of 1:250,000, believed to be too large for forest industry studies and too vague when attempting to plot micro-environmental attributes or site specific data such as information from First Nation community members. The present program analyzes data from known sites and the AIS field program to determine the utility of these criteria in evaluating potential site presence.

2.2 First Nation Information

Although the Carlson (1996) model identifies the need for First Nation information to more accurately determine potential, such input has never been implemented. It is recognized that such information may not be broadly applicable in predictive model development, but this assumption has not been tested. In the present program, First Nation information was collected by direct consultation with the Lake Babine peoples, specifically Old Fort community members who hold traplines within the study area. A number of potential sites identified in this program were inspected in the field inventory program. As a test of how closely such informant information matches the landscape based archaeological potential model, areas identified as possible archaeological sites and/or sensitive areas were then compared with potential maps. Without relinquishing any confidential or culturally sensitive information, the refined predictive model integrated this community information. It must be noted that regardless of the correlation of archaeological potential zones and culturally sensitive areas identified by First Nation consultants, the need for continued First Nation involvement is not diminished.

2.3 Lack of Field Data

The general lack of archaeological field data for the Morice Forest District is the third major data gap addressed within this study. The first step in addressing this deficiency is an analysis of past survey results in regards to the various criteria thought to be important in assessing archaeological potential. Most archaeological work undertaken prior to the last few years is skewed towards areas of generally high archaeological potential when surveys were conducted primarily in areas of known archaeological resources, frequently around and in proximity to major bodies of water and drainages. This general bias towards "high yielding areas" has led to an archaeological record with an over-representation of large, complex site types.

The second step in addressing the general lack of field data is a focus on field survey in areas of lower potential. A stratified archaeological inventory sampling program was implemented in the Tochcha and Owen-McBride IRM units. Focus was primarily on moderate to low potential areas based on the Carlson (1996) model. These are the areas

where the largest gaps in field data exist. Results of the field survey were then incorporated into a further refinement of the archaeological potential model with explicit reference to a series of criteria relevant to archaeological site occurrence.

3. Procedures

3.1 Prefield

The first step in testing the Carlson (1996) model was to update site records. Site data were obtained from the Archaeology Branch and were electronically incorporated into study area base maps. Hard copy file searches were also undertaken to ensure the accuracy of the digitized mapping. For the purposes of the present review, archaeological sites of concern included:

- All sites in the Canadian Heritage Information Network (CHIN) database except Municipally Designated non-archaeological sites;
- Designated archaeological sites;
- Any pre-1846 site where archaeological methods would be the predominant method of investigation; and
- Any 1846 or later site which has direct application to understanding Aboriginal land use.

To obtain as wide a sample of sites and site locational data as possible, the entire forest district and areas immediately adjacent with similar geography and cultural groups were included in the study area analysis.

The focus of this phase of data acquisition and analysis was the identification of landscape variables which correlate with archaeological site occurrence. Working directly from site records, variables such as distance from water bodies, aspect, slope, landform, drainage and forest cover type were recorded and tabulated to explicitly identify their relative importance in terms of archaeological site predictability.

Each recorded site was assigned to a defined site type or types based on information from the CHIN data and hard copy site forms. Site types are addressed and defined in Section 4.4. Types include cultural materials (lithic scatters), habitation, subsistence feature, culturally modified tree, burial, trail, historic and other.

Site location factors for each site type were then determined. Since a large number of geographical, biological, historical and cultural factors can effect site location, a preliminary list was compiled dividing factors into two broad categories: **physical** (those factors of the physical environment conducive to site location) and **cultural** (those factors of the cultural environment and landscape which influence the location of sites). The preliminary list of physical factors included landform (topographical features), aspect, slope, soil drainage, distance from water (broken down into type of water body and including both present and past features), vegetation or forest cover, biogeoclimatic zone, elevation and resource abundance (divided into proximity to resources known or suspected to be of importance to First Nations including specific faunal, floral and mineral resources). Cultural factors are more complex and less amenable to direct observation. However, some factors were addressed through research and direct First Nation consultation. This list includes trails (the distance from historically and ethnographically used travel/trade routes and/or trap lines), ethnographic and historic areas (distance from named places) and culturally significant landscapes (areas of special cultural significance to First Nations people including boundaries, shared areas and mythological/spiritual areas).

Archaeological potential in the existing operational potential model was assessed at a 1:50,000 scale. To refine areas of potential, 1:20,000 scale analysis employing both air photographs and mosaics and 1:20,000 scale topographic maps was undertaken in the present program. More attention can be paid to slope and landform in this analysis to refine areas of differing archaeological potential. More detailed study also serves to identify smaller features such as knolls, old stream channels and possibly even trails, all of which have implication in the development of the refined archaeological potential

model. This analysis was undertaken with particular reference to the Tochcha and Owen-McBride IRM units.

Based on site data interpretation, review of recent archaeological studies in the region and large scale map interpretation, refinements to the existing potential model were made in the two specific IRM unit study areas. The model is based on the probability of site occurrence within defined geographic units, with probability defined as high (high probability to occur), medium (moderate probability to occur) and low (low probability to occur). Archaeological potential is more fully explained in later report sections. Only clearly defined variables for plotting archaeological potential were used, as this has several advantages:

- It enables the work to be assessed and replicated by other workers;
- It allows for easy updating through the incorporation of new data and adjustments to the model;
- It can be transferred to adjacent areas with a minimum of revision, and;
- It can be effectively modeled using geographic analysis of digitized datasets.

In the development of potential model refinements, the study area was culturally divided between the Lake Babine and Wet'suwet'en peoples to take into account possible differences in settlement and land use. Maps of traditional territory were used to divide site data information.

3.2 First Nation Consultation

Following review of site form information, direct consultation with the Lake Babine Nation was undertaken. The Wet'suwet'en First Nation did not participate in the direct consultation stage. First Nations contact was coordinated with Doris Munger, District Aboriginal Forestry Advisor, Colleen Jones of Shamaya Consulting and Marianne Poirier of Old Fort.

The consultation program was undertaken with specific reference to the Tochcha IRM unit where the Lake Babine Nation, specifically Nedo'ats or Old Fort claims traditional

territory. Colleen Jones of Shamaya Consulting helped coordinate the interviews, arranged for a translator and acted as a liaison between the band and the archaeologist. Marianne Poirier acted as translator and facilitated arrangements for visiting community members and elders.

Before conducting interviews, an Information Sharing Agreement was discussed and signed by interviewees and interviewers. The text of the agreement is included as Appendix A. Essentially the document states that information acquired during interviews will be kept confidential unless permission to share this information is given by the community member who provided the information.

Interviews were conducted at the Granisle Resort Motel conference room in Granisle, B.C. Interviews follow accepted anthropological interview procedures with a focus on eliciting information pertinent to cultural resources within the study area . After obtaining approval from the interviewees, interviews were taped. Following consultation with Colleen Jones and Marianne Poirier, it was decided that group interviews were the most appropriate, with all Old Fort trapline headholders present at all times if feasible. The interviews were conducted in an open floor discussion style rather than questionnaire-type interviews since the latter are more closed and more likely to affect responses. Places known to elders were identified and marked on working project maps. Place names, both in Carrier and with English translations, were provided if known.

As part of the interview process, archaeology in general was discussed with band members. The rationale for conducting overview studies was explained and general archaeological field and lab techniques and archaeological sites and locations in the region were discussed. As well, a nearby recorded archaeological site was visited by all those participating in the program.

3.3 Field Inventory

A stratified field program was employed to test the model. Using the Carlson (1996) model, a percentage of each “zone” of differing archaeological potential within each of

the IRM units was selected for survey. A series of 15 ha survey "blocks" (500 m by 300 m areas) were plotted on maps throughout the study area. Survey blocks were used as guidelines only; entire 15 ha areas did not necessarily have to be surveyed. Criteria for the selection of the survey blocks were proximity to water, slope (survey was generally confined to those areas with less than 40% slope, although a small percentage of survey blocks contained steeper sections), proximity to known archaeological sites, topography, aspect and lack of previous survey in the general vicinity. Survey blocks were primarily in areas considered to have medium and/or low archaeological potential. Although an entirely statistical sampling design would be a more powerful tool for testing the model, this judgemental placement of survey areas helped to ensure that all variables potentially important in modeling were included in the sample. The judgemental approach also allows areas identified by First Nations consultants to be included. In addition, less accessible areas can be eliminated as a practical consideration.

For all field survey, crews consisted of at least two archaeologists and, depending on availability, from one to three First Nations assistants walking transects spaced at no more than 10 m apart. Every attempt was made to keep the survey as systematic as possible so that areas received similar survey regardless of potential. However, in areas of predicted site occurrence and/or identified resources, more intensive survey was undertaken. Transects were walked either following cardinal compass directions or, if more appropriate, following natural features such as creeks, rivers, lake shores, terraces, etc. Shovel tests were excavated at regular intervals, with a general rule being one test per 50 m crew transect. In areas of high archaeological potential, the rate of shovel testing was increased if deemed appropriate. All shovel tests were screened through ¼" (6 mm) wire mesh hand held screens and backfilled when complete. All standing and fallen trees along transects or within sight lines of transects were inspected for evidence of cultural modification. When sites were encountered, field crews surveyed and recorded site dimensions, number of features, depth of cultural material, etc. following standard archaeological site recording techniques. If practical, site locations were confirmed with a handheld GPS (Global Positioning System).

4. Background

4.1 Environment

The Morice Forest District lies to the south of the Skeena Mountains and east of the Hazelton Ranges in the northern portion of the Nechako and Interior Plateaus. It is bordered to the south by Ootsa and Whitesail lakes and Tweedsmuir Park; to the west by the Kalum and Bulkley TSAs and the Hazelton Mountains; to the north by the Babine River and Prince George TSA; and to the east by the Lakes TSA.

The Tochcha study area is located in the northern portion of the Morice Forest District immediately east of Morrison Lake and encompassing Friday, Nakinilerak, Hautete, East Hautete and Natowite lakes. Geographically, the area is defined by a central basin of low lying lakes and creeks draining south towards Natowite Lake, bordered to the east and west by mountains.

The Owen-McBride study area, by contrast, is mountainous. Located in the south-central portion of the forest district immediately northeast of Morice Lake, the area is bounded by the Morice River to the north and Owen Creek to the east.

During the Pleistocene, the entire project area was covered with glacial ice. The ice mass had receded by approximately 9,000-10,000 years ago and the Bulkley, Skeena, Babine and Hazelton regions were likely habitable shortly thereafter. Post-glacial climatic conditions, forest cover and vegetation is not well known in the northern regions of British Columbia, but much can be inferred from paleoenvironmental studies of the central interior. Between 12,000 and 10,500 years ago, likely predating human occupation, conditions were cool and moist. The next 3,500 years marked a warmer and dryer period known as the Hypsithermal (Hebda 1982, 1986; Mathewes 1985). Between about 7,000 to 4,500 years before present (B.P.), temperatures remained warm but precipitation increased. A cooler, moister climate than today was in evidence between 4,500 to 3,000 years ago, followed by relatively stable climatic conditions from 3,500 years B.P. onward.

The Morice Forest District today is comprised of five major biogeoclimatic zones: Alpine Tundra (AT), Coastal Western Hemlock (CWH), Engelmann Spruce-Subalpine Fir (ESSF), Mountain Hemlock (MH) and Sub-Boreal Spruce (SBS). The Tochcha and Owen-McBride study areas fall only within the SBS, ESSF and, at higher elevations, AT biogeoclimatic zones. The Sub-Boreal Spruce (SBS) biogeoclimatic zone is typified by the gently rolling plateau in the center of B.C.'s interior. Intermediate between the dry, southern Interior Douglas fir forests and the northern boreal forests, the Sub-Boreal spruce zone is climatically severe, with short but cold winters and a moderate growing season. The most common tree species are the hybrid white spruce (*Picea glauca x engelmannii*) and subalpine fir (*Abies lasiocarpa*), with regenerated lodgepole pine (*Pinus contorta* var. *latifolia*) in the drier areas and large cottonwoods (*Populus balsamifera* ssp. *trichocarpa*) in the wetter areas. Poorly drained areas in this biogeoclimatic zone are frequent and characteristically wet. The Engelmann-Spruce Subalpine-Fir (ESSF) biogeoclimatic zone is situated at subalpine high elevations characterized by severe cold climate. At the highest elevations are open parkland, meadows and grassland, while whitebark pine (*Pinus albicaulis*), Engelmann spruce (*Picea engelmannii*), subalpine fir, lodgepole pine and the occasional mountain hemlock (*Tsuga mertensiana*) make up the forested regions. Together, the SBS and ESSF biogeoclimatic zones cover the majority of the Tochcha and Owen-McBride study areas. At highest elevation lies the treeless, climatically harsh Alpine Tundra (AT) biogeoclimatic zone. Dwarf shrubs, herbs, mosses and lichens dominate the plant life, as the long cold winters and short growing season are too severe for most wooded plants.

The most common large mammals in the study area include mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), elk or wapiti (*Cervus elaphus*), black bear (*Ursus americanus*), grizzly bear (*Ursus arctos*), moose (*Alces alces*), grey wolf (*Canis lupus*), cougar (*Felis concolor*) and, at higher elevations, bighorn sheep (*Ovis canadensis*), mountain goat (*Oreamnos americanus*) and caribou (*Rangifer tarandus*). Smaller mammals include coyote (*Canis latrans*), porcupine (*Erethizon dorsatum*), beaver (*Castor canadensis*), fox (*Vulpes vulpes*), marten (*Martes americana*),

marmot (*Marmota* sp.), hare (*Lepus americanus*) and muskrat (*Ondatra zibethicus*). Salmon (*Oncorhynchus* sp.) can be found in many of the streams and rivers throughout the project area in general.

4.2 Ethnography and Ethnohistory

Ethnography is a description of a particular culture based on observations, participation and interviews with members of that culture. Ethnohistory describes Native life and events in early historic times and is based on written records. Archival documents are sources of both ethnohistoric and ethnographic data. All data in this section are from published and unpublished sources as opposed to original research.

4.2.1 Linguistic and Ethnic Affiliations

Traditionally, the Morice Forest District is within the territory of the Carrier peoples, a Northern Athapaskan speaking linguistic grouping comprised of a number of “subtribes”. A total of fourteen subtribes have been identified within the Carrier, all based on socioterritorial units identified from a variety of early sources (Jenness 1943; Morice 1893, 1906). It is primarily based on linguistic grouping that the Carrier “tribe”, as it is used here, is distinguished from the neighbouring Chilcotin and Sekani, the Gitksan, Haisla, Bella Coola and Shuswap (Tobey 1981:413). The Tochcha study area is within the Babine Lake subtribe of the Northern Carrier. Specifically it is the traditional territory of the Lake Babine Nation. The Old Fort, *Nedo’ats*, and Fort Babine, *Wit’at*, peoples of the Lake Babine Nation traditionally used the Tochcha area. The archaeological inventory study, however, was confined to Old Fort traditional territory. The Owen-McBride study area is within the territory of the Bulkley River subtribe of the Northern Carrier. Specifically it is the traditional territory of the Wet’suwet’en First Nation.

Traditionally, the Northern Carrier were organized in matrilineal based clans, similar to and possibly based on the social organization of the Gitksan (Cassidy and Cassidy 1980; Tobey 1981). Following a pattern of seasonal transhumance characterized by summer and winter aggregation and spring and fall dispersal the most important economic activity of the Carrier peoples was fishing salmon in the late summer and fall. Utilizing tools and

equipment such as fish weirs, fish traps, scaffolds, rakes, spears, gaffs, harpoons and nets, the Carrier caught salmon which were caught, dried and stored in cache pits for the winter months (Magne 1982:8; Tobey 1981:424). Summer settlements would split up in the late fall and early winter, and hunting would begin along established trap lines. During the colder months, the Carrier would congregate in smaller settlements to eat stored foods such as salmon, meats and a variety of plant foods (Tobey 1981:425). Spring was a season of scarcity, when remaining stored foods were utilized supplemented with fish taken from lakes, cambium from stripped pine trees and early spring shoots (Magne 1982:10). The Carrier peoples would congregate again in the summer months to potlatch, an activity likely adopted from the Gitksan (Cassidy and Cassidy 1981). Potlatching and trading linked the Carrier with neighbouring peoples from as far away as Bella Coola along trail networks that saw goods such as eulachon oil and raw lithic materials carried from the coast to the interior (Tobey 1981).

4.3 Archaeology

In terms of prehistory, the west-central portion of the province lacks a cohesive regional culture sequence, though a 4,500 year long continuum of cultural evolution has been proposed (Donahue 1977). Culture sequences have been suggested based on a number of well studied Gitksan sites to the north and west, specifically Githaus, Kitselas Canyon and Hagwilget Canyon (Allaire 1979; Ames 1979; Coupland 1988), but little has been specifically proposed for the Tochcha and Owen-McBride area or within the Morice Forest District in general.

Outside of the Tochcha and Owen-McBride areas, the Morice Forest District has seen a number of archaeological studies conducted within or in the immediate vicinity of its boundaries. Borden (1951) recorded 115 sites while surveying Ootsa Lake and the Nechako Reservoir; Sewell (1959) recorded a number of sites in the Nechako River Valley; Elliot (1968) and McMurdo (1971) conducted archaeological surveys and Wilson *et al.* (1992) prepared a forestry related archaeological overview of Takla Lake and Takla Landing respectively; Rafferty (1975) conducted a general site survey between Telkwa and Bulkley Lake; Kimble (1978) surveyed throughout the Skeena and Bulkley areas;

Bailey and Rousseau (1993) conducted an AIA for a proposed mining development near Houston; Warner (1983, 1984), Wilson (1990) and Hewer (1998) conducted archaeological projects related to a proposed coal mine near Telkwa; Ham (1988) conducted survey in the vicinity of Dome Mountain to the north of Telkwa; and Richards (1981) recorded 15 new archaeological sites in the Uncha Lake area of the Nechako Plateau. A number of archaeological overviews, surveys and inventories were conducted in the general area in conjunction with the Kemano and Kemano II hydroelectric project (Apland and Wilson 1980; Warner 1979; Warner and Wilson 1982). Various transmission line related surveys (Bussey 1981; Magne 1982; Scott and Bates 1975) and gas pipeline locations (Wilson 1985, 1994) were also conducted. Finally, a number of archaeological inventories and excavations have been conducted outside the study area to the north and west (Albright 1987; Allaire 1979; Ames 1971; Carlson and Bussey 1990a,b).

Recent archaeological work in the Morice Forest District has generally focused on forestry related survey (Canuel 1997; Carlson 1997; Maas 1997). Most of these recent surveys were undertaken away from major water bodies and have yielded several subsistence feature, cultural material and CMT sites (Carlson 1997). The CMT sites typically consist of bark stripped lodgepole pine trees occurring near creeks and lakeshores and continuing inland. Some may be associated with trails. These sites and other site types are described and discussed below in Section 4.4.

4.3.1 Tochcha IRM Unit

Previous archaeological study in this area is limited. The majority of the archaeological work conducted in the area consisted of a three year survey of Babine Lake (Mohs 1974, 1975; Mohs and Mohs 1976). The three year survey was the result of a joint resource analysis of the Skeena District for the Archaeological Sites Advisory Board who was charged with the task of identifying and recording archaeological and historic sites in the Skeena River drainage system (Mohs 1974). Survey encompassed the entire shore of Babine Lake excluding only the Babine Indian Reserve 25 at Topley Landing and Sterrett, MacDonald and Snowshoe islands (Mohs 1976). The lakeshore was not

surveyed beyond 50 to 100 m inland due to time constraints and the enormous size of Babine Lake. Mohs' survey yielded 224 archaeological sites and one historic site consisting of three signal stations. Previous to Mohs' survey, six archaeological sites had been recorded in the general area.

4.3.2 Owen-McBride IRM Unit

Again, the previous archaeological work in this study area is limited. Burley (1975) conducted a survey of Morice, McBride and Collins lakes in response to the Kemano II hydro-electric project which threatened to inundate lakeshore archaeological sites. Burley's survey yielded 24 previously unrecorded archaeological sites and two historic sites. The archaeological sites consist of three habitation/village sites with the remainder identified as prehistoric cache pit sites.

4.4 Site Types

Site types recorded in the Morice Forest District are habitation sites, subsistence feature sites, lithic scatters, combinations of habitation and/or subsistence features and/or lithic scatters, culturally modified trees, rock art sites, trails, human burial sites and historic sites. Many of these site types are easily recognizable with the exception of wholly and partially buried lithic scatters of stone tools. Sites may be made up of one or several of these components. A list of commonly used archaeological terms is included in the Glossary of Terms (Appendix B).

4.4.1 Habitation Sites

Prehistoric habitation sites are most common in locations adjacent to or in the immediate vicinity of bodies of water, most commonly large streams, lakes and rivers but also gullies, creeks and other small drainages. Habitation site types in the study region are most typically characterized by large, circular depressions or house pits. Pit houses were semi-subterranean winter dwellings traditionally used by a number of aboriginal peoples in British Columbia. Shallow, rectangular depressions, representing the remains of above ground rectangular structures, are also relatively common dwellings indicative of a habitation site. Due to factors of preservation, however, such above ground wooden structures are less likely to be immediately visible and identifiable in the field.

Habitation sites are important for the study of past lifeways and generally have high heritage significance, particularly in the case of ethnographically documented villages. Habitation sites frequently have more than one functional descriptor since cache pits, CMTs, lithic scatters, human burials and rock art are often present. An example of a habitation site from the project area is GgSn 24, a multi-component habitation/subsistence feature/cultural material site on a small island in Babine Lake. GgSn 24 contains six circular depressions, most likely the remains of pit house structures.

4.4.2 Subsistence Features

Subsistence features are defined as cache pits, roasting pits and above-ground caches, but fish weirs and subsistence based structures such as drying racks could also be included. Like habitation sites, above-ground caches, cache pits (best defined as subterranean storage pits), and roasting pits are often found in the vicinity of a water source, and are frequently, but not exclusively, a component of larger, multi-function sites. Fish weirs are found in association with water and fishing locales. However, subsistence features can be found wherever a temporary hunting or fishing camp was established, often in locations away from principal habitation sites.

Subsistence feature sites in the Morice Forest District, most commonly represented by cache pits, are frequently found in locations away from habitation sites in areas where subsistence activities such as fishing were undertaken. GaSu 3 on the north side of the Morice River at Morice Lake (16 cache pits), GgSo 3 on an island in Babine Lake (19 cache pits) and GgSp 19 north of Smithers Landing on the east shore of Babine Lake (1 cache pit) are examples of sites with subsistence feature components.

4.4.3 Cultural Material—Lithic Scatters

Lithic scatters are classed as “Cultural Material” sites, a more general site description where specialized activities such as the processing of food or raw materials occurred, leaving behind identifiable remains such as fire cracked rock or lithics (stone tools and/or stone tool manufacturing by-products). Lithic scatters can also reflect camp sites where only transitory dwellings such as summer above ground structures were present.

Therefore, the category of lithic scatter is not functional but simply a description of the physical remains at a given site.

Lithic scatter sites consist of scatters of stone tools and/or flakes, the result of lithic raw material processing and tool production and/or tool maintenance. Isolated artifact finds are included in this category. These sites are distinguished from habitation sites because of their lack of structural remains and often by their less diverse artifact assemblages, the result of less intensive and more specialized activities than reflected at village sites. Lithic scatters are frequently identified by surface lithics, although archaeological subsurface testing is required to establish the boundaries and depth of the scatter. FlSp 2, located on the edge of a slightly raised terrace over the Nadina River, is an example of a lithic scatter or cultural material site.

4.4.4 Culturally Modified Trees

In the most general sense, culturally modified trees are any trees evidencing human modification. In a more specific and commonly used sense, CMTs are trees that have been modified by aboriginal people for traditional purposes such as for bark removal, use for traditional building material and so on. CMTs can result from aboriginal modification using modern tools. “Non-traditional” aboriginal modification such as commercial logging by aboriginals using chainsaws is generally excluded from CMT inclusion. Many archaeologists do not consider CMTs to constitute archaeological sites unless in association with other cultural materials. However, some archaeologists record all CMTs, even isolated trees, as either archaeological sites or traditional use features. Provincial guidelines today suggest that trees modified before 1846 be recorded as archaeological sites. Trees modified after 1846 are most often recorded as traditional use features. Throughout the province, stripped cedar trees are among the most common of CMT types, although in the interior and within the current project area, stripping of lodgepole pine trees for cambium removal are the most common CMT type. GaSp 1 and GaSp 2 north of the Nadina River near François Lake and GbSo 2 on Goosly Lake are sites consisting of culturally modified trees.

4.4.5 Rock Art Sites

Rock art sites can generally be classified into two basic types: pictographs and petroglyphs. Pictographs are painted images and petroglyphs are pecked or ground images in rock.

Pictographs are generally red ochre stained drawings often placed in highly visible locations. Images that have been recorded in the interior include human figures, faces, boats, animals, mythological figures, directional markers and abstract images. Petroglyphs, rare in the interior and mostly a coastal phenomenon, depict similar though not identical subjects to pictographs. Petroglyphs tend to be far more difficult to identify and are thought to have a greater potential time depth than pictographs because of factors of preservation. However, no studies have been undertaken to test this assumption and little is known regarding possible functional, temporal or cultural differences between pictographs and petroglyphs.

There are no recorded petroglyph sites within the Morice Forest District. However, a number of pictograph sites have been recorded. GeSm 9 and GeSm 10 on an island in Babine Lake and GfSn 1 along the western shore of Newman Peninsula are examples of pictograph sites within the study area.

4.4.6 Trails

Trails within the general project area represent transportation corridors frequently following well-traveled game trails around and to lakes, rivers, creeks and other geographical features. A significant number of well documented aboriginal trails, such as “grease trails” originating on the coast and used to carry goods to the interior, have been documented within or adjacent to the project area. Because of their ambiguous nature, however, smaller trails are rarely identified as archaeological sites, but instead are noted as historic and/or traditional land use features. Trails are frequently recorded in association with other archaeological site types, most notably CMTs and lithic scatters. FkSp 3, now submerged under Ootsa Lake (the Nechako Reservoir), was recorded in the

1950s as a lithic scatter (cultural material) site and the reported beginning of the Chief Louis canoe trail.

4.4.7 Human Burials

This category includes sites which contain material remains and features associated with prehistoric mortuary practices. However, interments from the historic period are frequently reported in association with recorded archaeological sites. Information about historic cemeteries or individual or family interments can often be acquired through documentary research and consultation with local residents.

Prehistoric burials are difficult to identify because of their generally unmarked nature, although cairns and other related structures can be associated with burials. Burials in the general area are usually associated with larger habitation sites, but are recorded infrequently because of their low archaeological visibility and generally low level of archaeological testing at sites in the present study area. From the project area, GgSn 14 is a recorded human burial located on the west shore of the northeast arm of Babine Lake.

4.4.8 Historic Sites

Historic sites relate to human activities during the time period documented by written records. Historic sites in the general study area primarily relate to resource extraction such as logging, mining and agriculture, as well as small scale hunting and fishing activities. Sites can range from large complex sites which represent a wide range of activities to task specific sites which evidence little diversity in activity. Thus, the scientific, historic, and ethnic significance of this site type varies greatly and should be assessed on an individual basis. Such research should take into account archaeological remains, standing structures, documentary evidence, historic significance (links to important events, individuals and developments in local, regional and national history), ethnic and economic significance. It should be noted that current legislation requires archaeological evaluation of all sites older than 1846 and allows more flexibility with more recent resources. However, post-1846 sites may also require archaeological work and may be protected by legislation depending on the nature and significance of the

deposit. For example, historic CMTs which have been modified by First Nations peoples can be recorded archaeologically as traditional use features.

Historic sites within the general area tend to be relatively small, activity specific sites such as hunting and fishing camps and/or cabins, or resource extraction sites such as those associated with mines or fishing operations. GaSu 1, located near the confluence of the Morice River and Morice Lake is an historic site comprised of a log cabin structure; GgSn 43, north of Old Fort on the west side of the northeast arm of Babine Lake, is the remains of Fort Kilmaurs, the First Hudson Bay Company post on Babine Lake, established in 1822.

Current to 1997, 276 sites have been recorded in the Morice Forest District. Table 1 provides a summary of site types in the study area indicating primary, secondary and tertiary site types based on the site recorder's descriptions.

Table 1: Study Area Site Types

| Primary | Secondary | Tertiary | Total |
|----------------------|---------------------|-------------------|------------|
| Habitation | | | 3 |
| Habitation | Subsistence Feature | | 6 |
| Habitation | Subsistence Feature | Cultural Material | 10 |
| Habitation | Cultural Material | | 1 |
| Subsistence Feature | | | 172 |
| Subsistence Feature | Cultural Material | | 27 |
| Subsistence Feature | Cultural Material | CMT | 1 |
| Cultural Material | | | 33 |
| Cultural Material | Trail | | 1 |
| Cultural Material | Historic | | 1 |
| Cultural Material | Burial (Historic) | | 1 |
| CMT | | | 6 |
| Pictograph | | | 4 |
| Burial (Prehistoric) | | | 1 |
| Historic | | | 6 |
| Historic | Burial | | 3 |
| Grand Total | | | 276 |

As can be seen from Table 1, the overwhelming majority of sites are prehistoric. Of the 276 sites recorded in the area, only 9 or 3.3% are described as primarily historic, with one site described as having an historic component. Therefore 266 or 96.4% of the recorded sites in the study area are solely prehistoric, while 267 or 96.7% have a prehistoric component.

Site types were further grouped by the primary site types (Table 2). Subsistence feature sites are clearly the most predominant of all primary site types in the study area at 72.5%. The bulk of these subsistence feature sites are cache pit sites. Together, subsistence feature, cultural material and habitation sites make up 92.7% of all primary site types in the Morice Forest District.

Table 2: Primary Site Types in Study Area

| Primary Site Type | Count | Percent |
|----------------------|-------|---------|
| Habitation | 20 | 7.2 |
| Subsistence Feature | 200 | 72.5 |
| Cultural Material | 36 | 13.0 |
| CMT | 6 | 2.2 |
| Pictograph | 4 | 1.5 |
| Burial (Prehistoric) | 1 | 0.4 |
| Historic | 9 | 3.3 |

The overwhelming predominance of subsistence feature sites, and, to a lesser degree, cultural material and habitation sites, can be attributed to a number of factors. The physical remains of such sites, specifically subsistence feature, habitation and surface cultural materials, are among the most easily recognizable site constituents in the. Based on the biases of previous surveys, these site types, frequently located on or close to major bodies of water, were the earliest sites to be recorded. In fact, 225 of the 276 sites recorded in the district, most of them subsistence feature, habitation and cultural material sites, were recorded around Babine Lake during a three year survey program in the 1970s (Mohs 1974, 1975; Mohs and Mohs 1976) A further 26 sites, almost exclusively subsistence feature sites, were recorded around Morice and McBride lakes by Burley (1975). These early site recorders in the Morice Forest District generally did not include such features as CMTs as site constituents since CMTs were not recognized as significant features at this time.

By cross-referencing Table 1, it can be seen that at least 16 of the 20 habitation sites contain subsistence features as secondary components, while 11 contain cultural materials. In fact, 17 (85.0%) of all habitation sites have multiple described components. It is clear from these data that habitation sites are the most complex of site types, commonly exhibiting secondary and tertiary site characteristics. While there are 200 described subsistence feature sites, a further 16 sites (all habitation) contain subsistence features as secondary components. A total of 216 or 78.3% of all sites therefore contain subsistence features as either primary or secondary components. Of further interest is the number of sites with cultural material components. In total, 28 of the 200 subsistence feature sites and 11 of the 20 habitation sites have cultural materials as secondary or tertiary components. Therefore, a grand total of 75 of the 276 sites within the Morice Forest District, or 27.2%, have a described cultural material component.

The fourth most common site type in the study area is historic sites with 9 or 3.3% of study area sites falling into this category. In addition to the sites identified primarily as historic, an additional site is reported to contain an historic component. A total of 3.6% of all known sites in the study area thus have an historic component.

CMT sites make up only 2.2% of all primary site types within the forest district. The low percentage of CMT sites is important to note and may be somewhat misleading. Growing numbers of culturally modified trees have been recorded over the past several years throughout the province, and the majority of CMT sites within the study area were recorded in 1996. This recent expansion in CMT identification and recording is due primarily to the growth in forest industry related archaeological studies and a greater understanding of CMTs as cultural resources. In the past, CMT locales were either not recorded or were noted in reports but not officially recorded as archaeological sites making quantification of this site type misleading. Despite that fact that logging and forest fires have undoubtedly had an adverse affect upon CMT resources, culturally modified trees are probably more common in the study area than the percentages here would imply.

Pictographs make up only 1.5% of sites in the study area, while known prehistoric burials only account for 0.4% of all sites. Three historic burials, all secondary components within recorded historic sites, have also been recorded. Only one trail is recorded in the study area, associated with a primary cultural material site.

5. Results

5.1 First Nation Consultation

Interviews with Nedo'ats (Old Fort) trapline headholders revealed 112 reported site locations within and immediately adjacent to the Tochcha study area. It must be stressed that only Nedo'ats (Old Fort) traditional territory was addressed in the Tochcha IRM Unit. All site specific data such as site locations, constituents, function and informant's identity are confidential at the request of the interviewees. However, some general observations pertaining to general geographic site locations and their relationship to variables believed to be significant for predicting archaeological potential are discussed below.

Thirty-eight of the 112 reported site areas are trails. Fifty-five identified areas are potential archaeological sites, including CMTs, cache pits, roasting pits, lithic scatters, campsites, cabins, fishing and hunting locales. Fifty-five areas including potential archaeological/historic sites, ethnographic, spiritual or traditional use areas, and geographic features such as lakes, creeks and mountains have Carrier place names. Nineteen of these Carrier place names applied to "sites" with the remainder identifying natural features only.

5.2 Preliminary Model Development (Prefield)

Prior to initiation of field inventory, a draft archaeological potential model was designed by I. R. Wilson Consultants Ltd. All site records from within and adjacent to the Morice Forest District were analyzed and broken down into site types. Site variables such as proximity to water, biogeographical zone, aspect and elevation were then recorded. From this information, a draft model was constructed. The AIS was designed to test the draft

model of archaeological potential. Data compiled during the preliminary model development are included as Appendix C.

A number of problems became immediately apparent. Virtually no sites were recorded in association with features such as creeks, unnamed lakes, seasonal drainages, marshes and small scale topographic features, a result of biases of previous survey focusing on major water bodies. Thus, information on unnamed lakes and creeks had to be based on ethnographic analogy, First Nation consultation and work in other areas. Information was also lacking for higher elevation land use. The small number of recorded CMT sites meant that CMT distribution could also not be accurately predicted. Since the majority of previously recorded sites in both the Tochcha and Owen-McBride areas occur around the large, named bodies of water, a number of other variables become "skewed". For example, elevation, biogeoclimatic zone, wildlife habitat and aspect all become problematic variables in archaeological prediction as they are a product of and directly related to the nearby high potential body of water. Thus, the draft model was developed without the use of some anticipated variables.

Proximity to named lakes, rivers, unnamed lakes, unnamed creeks and slope were used in determining potential zones. Eight-six per cent of all recorded sites in the Morice Forest District and 70.1% of all sites identified through First Nation consultation are located within 150 m of a named lake. Thus, areas within this distance were considered to have *high archaeological potential*. Areas between 150 m and 250 m of a named lake were considered to have *moderate archaeological potential*. Of all sites recorded in the project area, 2.4% fall into the moderate potential zone around named lakes and 3.6% of all sites identified through consultation fall in the moderate potential zone around named lakes. No recorded sites and/or reported sites are located on "steep" terrain with a slope greater than 40%. Therefore, all potential buffers apply only to terrain less than 40% in slope.

For named rivers, a *high archaeological potential* area was defined within 100 m, while *moderate archaeological potential* was considered to be between 100 m and 200 m. Of

recorded sites, 4.3% fall into the river high potential zone, while 0.6% are in the moderate zone. For both unnamed lakes and unnamed perennial creeks (solid lines on T.R.I.M.) creeks, within 50 m was considered to have *moderate archaeological potential*. Only 0.3% of recorded sites fall into this moderate potential area. However, based on the fact that 14.5% of sites identified during First Nation consultation occur within 50 m of an unnamed lake or creek, it was considered appropriate to class the area within 50 m of unnamed lakes and creeks as having moderate archaeological potential. Table 3 summarizes potential area parameters.

Table 3: Draft Archaeological Potential Model

| Variable ¹ | Potential | Distance | Recorded Sites | Consultation Sites |
|-----------------------|-----------|-----------|----------------|--------------------|
| Named Lake | High | < 150 m | 86.0 % | 70.1 % |
| Named Lake | Moderate | 150-250 m | 2.4 % | 3.6 % |
| Named River | High | < 100 m | 4.3 % | 0 % |
| Named River | Moderate | 100-200 m | 0.6 % | 0 % |
| Unnamed Lake/Creek | Moderate | < 50 m | 0.3 % | 14.5 % |
| Total | | | 93.6% | 88.2% |

¹less than 40% slope only

All other areas were considered to have low or unknown archaeological potential. Six previously recorded sites, or 2.0% of all sites in the district and 9.0% of sites identified during First Nation consultation fall into the low potential zone. However, 5 of the 6 previously recorded sites are CMT sites. As discussed below, CMTs do not necessarily fit the archaeological model. While the absence of CMTs in high/moderate areas may simply be a product of biased recording techniques, the CMT site locations in “low” potential areas suggest that a separate CMT model with expanded potential boundaries may be of use in predicting CMT occurrence.

5.3 Tochcha IRM Unit Archaeological Inventory Study

Twenty-eight survey areas, 15 ha each, were plotted on 1:20,000 maps prior to field survey. Due to access difficulties, only the southern portion of the Tochcha area south of Nakinilerak Lake was considered for survey. This portion of the Tochcha area is in the traditional territory of the Ned’ats (Old Fort) peoples. Areas were plotted in proximity to various water sources of differing potential based on the draft model. Survey areas were

of varying elevations and differing aspect. A number of potential survey areas were placed around or in the general proximity to identified Old Fort consultation sites. All site information acquired during the consultation process will remain confidential. Information and results discussed below are based on archaeological field results only.

Fourteen of twenty-eight mapped 15 ha areas were surveyed. Three hundred twenty-nine culturally modified trees were identified and recorded within ten of these survey areas. All CMTs were bark stripped and/or kindling scarred lodgepole pine trees, many exhibiting tool marks such as axe cuts or knife marks. None of the trees that were increment bored had scars pre-dating 1846, although one CMT was dated approximately to the mid-nineteenth century. In addition to the CMTs, three cultural depressions, possible cache pits, and an historic cabin and campsite were also identified. Trails were identified in six of the survey areas.

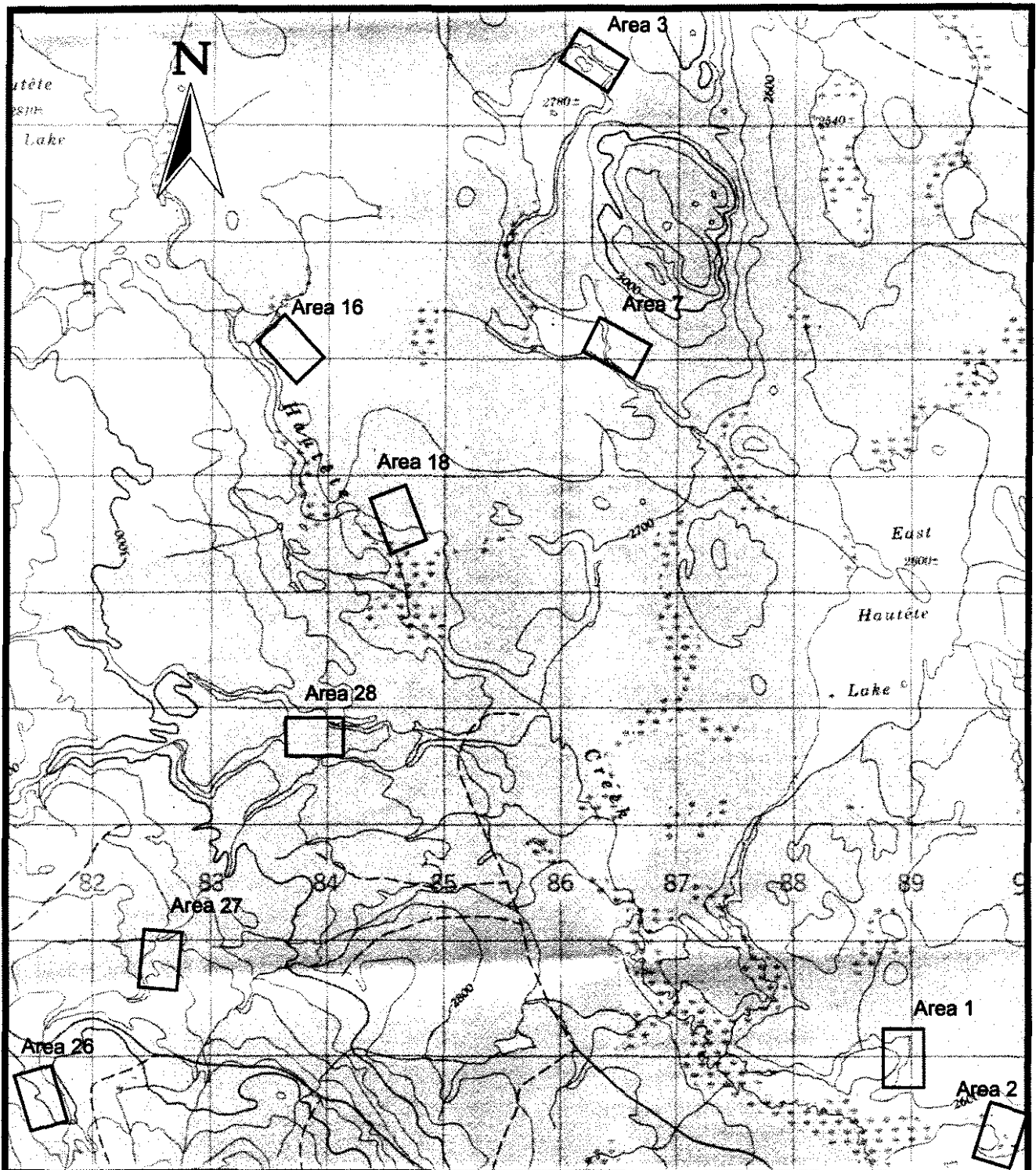
A total of eight of the fourteen surveyed blocks (57.1%) were adjacent to lakes. Seven were on unnamed lakes and one on a named lake. Three of the surveyed areas adjacent to lakes had a southern aspect (i.e., on the north shore of the lake), three had a northern aspect, two had a western aspect and one had an eastern aspect.

Four of the eight survey areas adjacent to lakes also had moderate potential creeks within their boundaries. Five of the fourteen study areas (35.7%) exclusively had moderate potential creeks within their boundaries. One other area (7.1%) had a low potential creek. In terms of approximating elevation, one area was at 700 m ASL, one was at 750 m, two areas were at 800 m, five areas were at approximately 850 m, two were at 900 m, one area was at 950 m, and one area each was at 1000 m and 1100 m ASL.

Below are survey area descriptions, general locations and result summaries.

5.3.1 Survey Area Results and Summaries

Area 1 is located off a small, unnamed marshy lake immediately north of Natowite Lake at an approximate elevation of 750 m ASL (Figure 4). Based on the draft archaeological potential model, the area from 0 to 50 m from the lake was considered to have moderate archaeological potential, while beyond 50 m was considered to be low in potential.



Survey Area



Project:

Morice AOA

Title:

Tochcha IRM ,Project Location,

Areas 1, 2, 3, 7, 16, 18, 26, 27, and 28

Figure:

4

Scale:

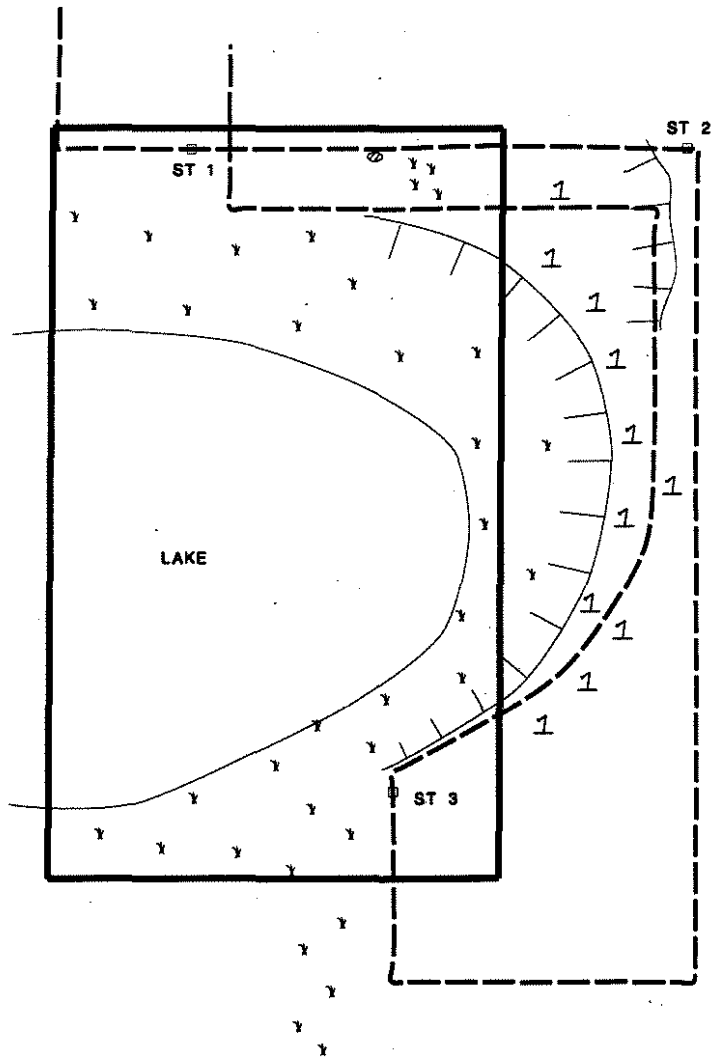
1:50,000 (93 M/1)

Transects were walked around the eastern portion of the lake (Figure 5). The lake edge was considerably marshier than indicated on maps; transects were therefore walked outside the original defined boundaries of the survey area. Forest cover consists of spruce, lodgepole pine, aspen and large cottonwoods with a dense understorey of soapberry and immature alder. Terrain is hummocky and marshy throughout, although a slightly raised terraced area was noted along the eastern edge of the lake. Based on the larger than anticipated marshy shore of the lake, only three shovel tests were excavated. All revealed a light reddish-brown sandy soil with gravels and cobbles underlain by a sterile yellowish-brown sand with gravel.

No archaeological resources and/or CMTs were identified within Survey Area 1.

Area 2 is located at about 700 m ASL on the north shore of Natowite Lake on a spit of land that juts out into the lake (Figure 4). The area within 150 m of the lake was considered to have high archaeological potential, while from 150 to 250 m was considered to be moderate in potential. Transects were walked parallel to the shore of the lake (Figure 6). Forest cover consists of spruce, lodgepole pine and aspen with a moderate to dense understorey.

Two sites were identified within Survey Area 2. Immediately to the north of the spit at approximately 825 m along the south transect into the survey area, four CMTs clustered on the lakeshore were identified and recorded. All CMTs evidence either rectangular or lenticular shaped bark strips, some with visible axe marks (Plate 1). Lenticular scars are similar in size to rectangular scars but are tapered at both the top and bottom. Since increment bore samples date the scarring of the trees to post-1846, the CMTs were recorded as traditional use features only. CMT 1, evidencing two rectangular bark strips, is located 14.8 m at 333° from the established datum at the 828 m mark of the south transect. CMT 2, with 1 lenticular and 1 rectangular bark strip, is located 8.9 m at 150° from CMT 1. CMTs 3, with a single lenticular shaped scar, and CMT 4, with a single rectangular bark strip are located 9.0 m at 166° and 8.0 m at 129° from CMT 1, respectively. CMT measurements and scar ages are included in Table 4.



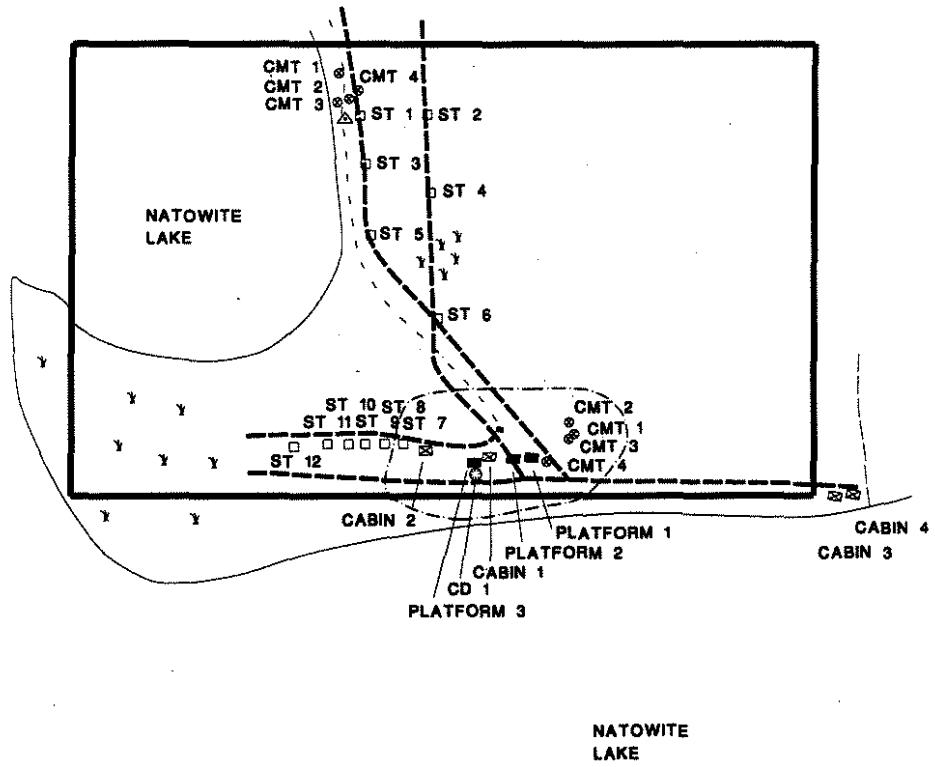
Negative Shovel Test
Swamp
Tree Throw
Blowdown



Project Boundary
Transect
Ridge or Terrace



PROJECT: Morice AOA
TITLE: Tochcha IRM Survey Area 1
FIGURE: 5
SCALE: 1:5,000



| | | | | | |
|--------------------------|---|------------------|-----------|----------|---|
| Negative Shovel Test | □ | Project Boundary | — | PROJECT: | Morice AOA |
| Culturally Modified Tree | ⊗ | Transect | - - - | TITLE: | Tochcha IRM Survey Area 2 and Site GgSm 1 |
| Cultural Depression | △ | Stream | — | FIGURE: | 6 |
| House Platform | ■ | Trail | - · - · - | SCALE: | 1:5,000 |
| Structure | ⊠ | Datum | △ | | |
| Swamp | Y | Site Boundary | - · - · - | | |



Plate 1: Area 2.

Table 4: Area 2 (North) CMTs

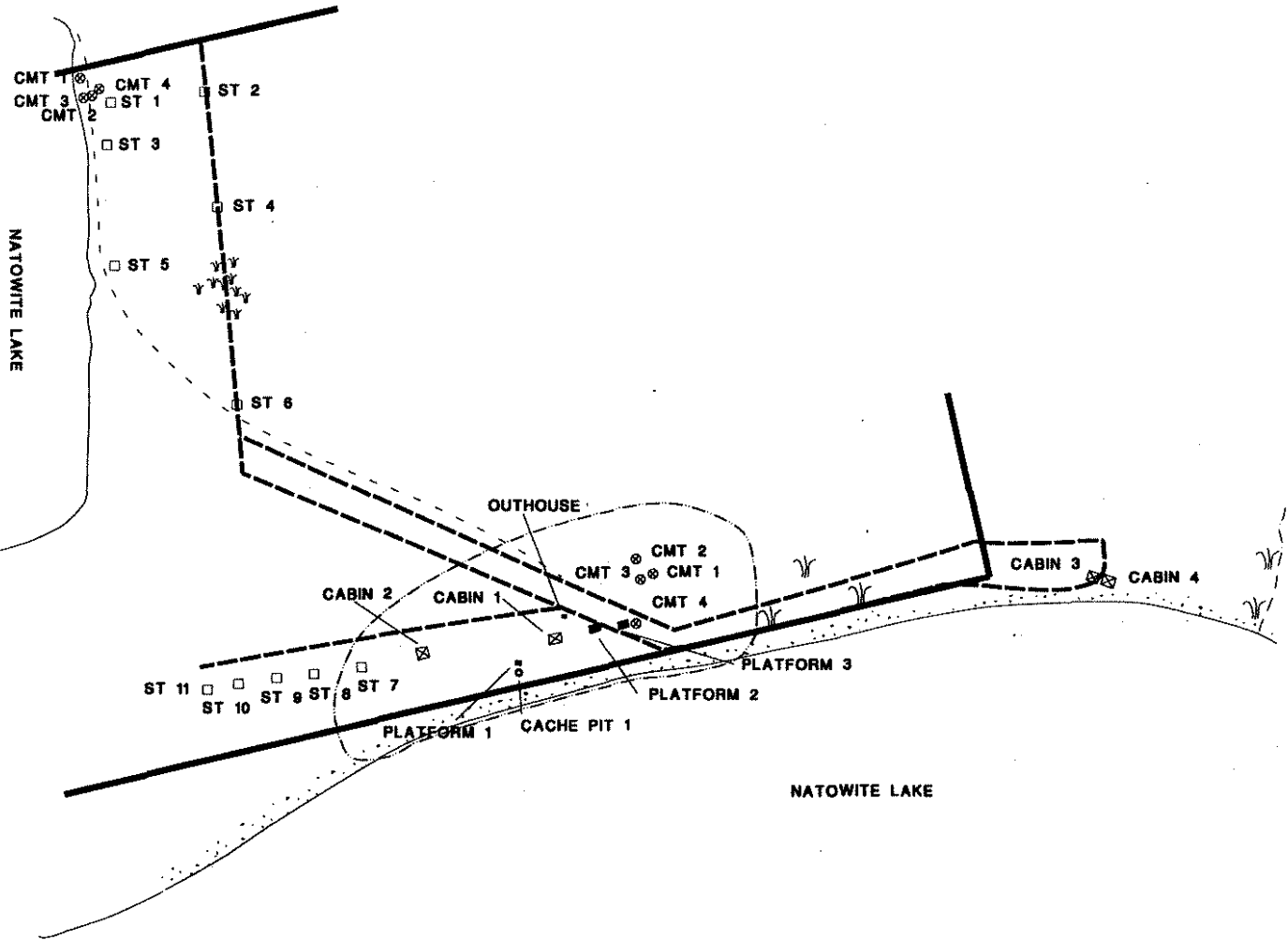
| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|--|----|----|----|------|------|--|-----|------|-----|-----|-----|-----|------|
| 1 | LP | BS | R | 1 | 36 | Flat | 128 | 20 | 6 | 17 | NE | Axe | 65 y |
| | | BS | R | 2 | 36 | Flat | 70 | 5 | 2 | 40 | W | - | |
| 2 | LP | BS | L | 1 | 42.5 | 5% | 105 | 7 | 6 | 54 | W | Axe | 70 y |
| | | BS | R | 2 | 42.5 | 5% | 135 | 6 | 10 | 10 | SE | - | |
| 3 | LP | BS | L | 1 | 44.7 | Flat | 111 | 13.5 | 6 | 34 | E | - | 48 y |
| 4 | LP | BS | R | 1 | 33.1 | 5% | 80 | 10 | 5 | 75 | W | Axe | 50 y |
| <i>SP=species (LP=lodgepole pine)</i> <i>CL=class (BS=bark strip)</i> <i>TP=Type (R=rectangular; L=lenticular; T=triangular)</i> <i>FEAT=number of features/scars</i> <i>DBH=diameter of tree at breast height</i> <i>SLP=slope of terrain</i> <i>LEN=length of scar</i> | | | | | | <i>WID=width of scar</i> <i>DEP=depth of scar</i> <i>HAG=height above ground</i> <i>SDE=side of tree</i> <i>TMK=tool marks</i> <i>AGE=estimated scar age based on increment bore sample</i> <i>Note: all measurements are in centimeters</i> | | | | | | | |

A trail was also identified along the shoreline of Natowite Lake. The trail was followed along the shore of the lake onto the spit where a trapper's cabin and campsite were identified. One recent cabin, still in use, was recorded along with several other structures, including wood platforms, outhouses, recent and historic refuse, various wooden structures and the remains of three additional cabins (Plate 2). Vegetation on the spit is relatively open, consisting primarily of standing and logged lodgepole pine trees. Terrain on the spit is flat. Subsurface exposures and shovel tests revealed a subsurface of gravels.



Plate 2: Area 2 – Trapper's cabin on Natowite Lake.

Four CMTs and a cultural depression were also identified and recorded in Area 2 (Figure 7). The cultural depression measures 1.0 m in diameter with a depth of 70 cm and is likely a cache pit (Plate 3). CMT 1 is a rectangular bark stripped pine with axe marks. CMT 2 is a rectangular bark stripped pine with no visible tool marks. CMT 3, a probable rectangular bark stripped pine, and CMT 4 have both been logged and only stumps remain. CMT increment bore samples taken from the CMTs dated the scars to this century and are thus not considered to be archaeological. However, based on the cultural depression at the trapper's cabin site, the area was recorded as archaeological site **GgSm 1**. CMT measurements are included in Table 5.



- Transect
- Trail
- Lake's Beach
- Culturally Modified Tree
- Stream
- Swamp



- Project Boundary
- Negative Shovel Test
- Structure
- Cache Pit
- House Platform
- Site Boundary



PROJECT: Morice AOA
 TITLE: GgSm 1
 FIGURE: 7
 SCALE: 1:3,000



Plate 3: Area 2 – Fallen structure(s) and associated (?) cache pit (yellow note book in cache).

Table 5: Area 2 (GgSm 1) CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | R | 1 | 44 | Flat | 110 | 12 | 15 | 10 | E | Axe | 70 |
| 2 | LP | BS | R | 1 | 37.5 | Flat | 130 | 4 | 20 | 20 | N | - | 70 |
| 3* | LP | BS | R | 1 | 44.5 | Flat | 55 | 14 | 10 | 55 | E | - | - |
| 4* | LP | BS | R | 1 | 63 | Flat | 50 | 10 | 16 | 60 | N | Axe | - |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

* only stump remains

Twelve shovel tests were excavated in Survey Area 2, five in the general vicinity of the four northern CMTs and the trail and seven systematically excavated along the spit. No archaeological or cultural remains were identified in any of the shovel tests.

Area 3 is located at about 850 m ASL off the north tip of an unnamed lake between Hautete and East Hautete lakes (Figure 4). The area within 50 m of the lake was considered to be of moderate archaeological potential. Survey area 3 is located on the north side of the lake along the southeast corner of a clear cut.

Transects were walked throughout the survey area and 18 shovel tests were excavated (Figure 8). Terrain slopes to the southwest towards the lake where a marshy area surrounds a slightly elevated landform creating an “island”. A hunting blind and temporary camp site, likely still in use, were identified on the “island” alongside recently chainsawed trees. Nine shovel tests were systematically excavated along the landform; no archaeological or cultural materials were identified.

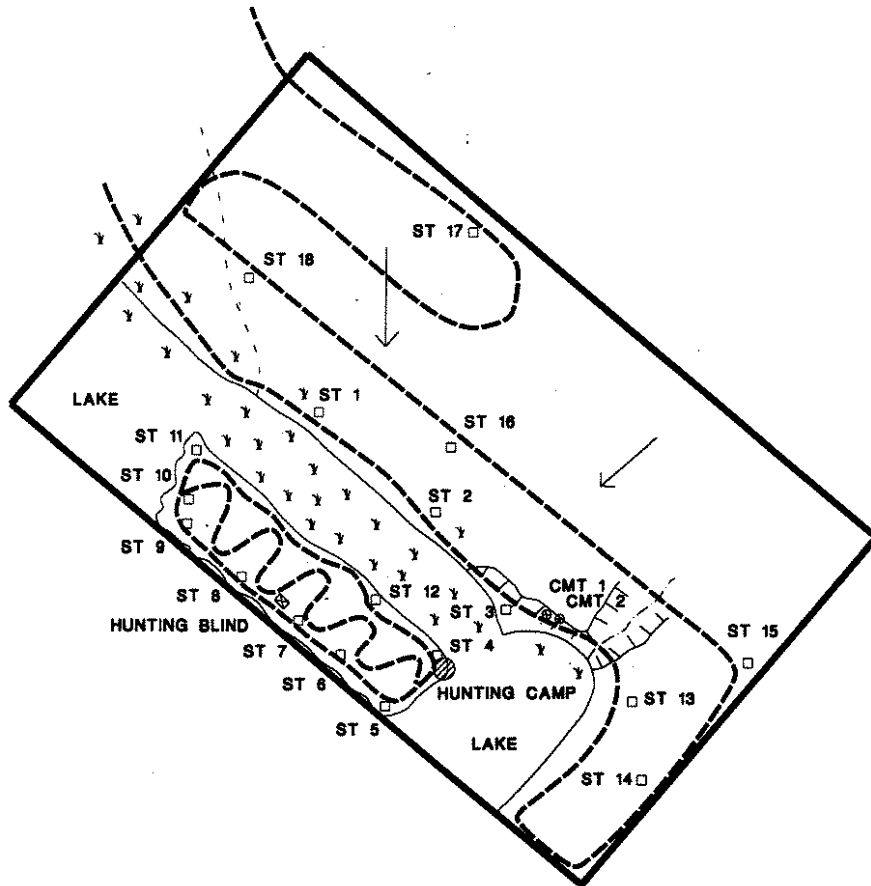
Two CMTs were identified and recorded along a terrace by the marshy shore of the lake adjacent to a gully or old stream channel. Located 350 m at 130° from the intersection of the northern corner of the lake and the southeastern corner of the clear cut, both CMTs evidence rectangular bark strip scars. CMT 1 exhibits two scars with axe marks; CMT 2 is a single scar with no visible tool marks. An increment bore date of 40 years on CMT 1 indicates that the cultural modification is not archaeological. CMT measurements are included in Table 6.






Table 6: Area 3 CMTs






| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|--------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | R | 1 | 46.6 | Slight | 48 | 6 | 5.5 | 93 | S | Axe | 40 |
| | | BS | R | 2 | 46.6 | Slight | 22 | 10 | 7 | 171 | S | - | 40 |
| 2 | LP | BS | R | 1 | 37.6 | Slight | 25 | 9 | 5 | 145 | S | - | - |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters



Negative Shovel Test 
 Culturally Modified Tree 
 Structure 
 Swamp 
 Modern Camp Area 

Project Boundary 
 Transect 
 Stream 
 Trail 
 Points Down Slope 

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 3
 FIGURE: 8
 SCALE: 1:5,000

Area 7 is located at about 850 m ASL off the southeast edge of a small lake between Hautete and East Hautete lakes (Figure 4). A creek flowing out of the lake in a southeasterly direction forms the southern boundary of Survey Area 7. The area within 50 m of the lake and creek was considered to have moderate archaeological potential while anything beyond 50 m was considered to be low in potential.

Transects were walked along a high, flat terrace paralleling the creek northwest to the lakeshore along the lake edge and returned in full to the southeast. Forest cover consists primarily of spruce and lodgepole pine trees. Twenty-eight CMTs were identified and recorded on the north/north-east side of the creek and lakeshore (Figure 9). Most evidence tool marks (Plate 4).

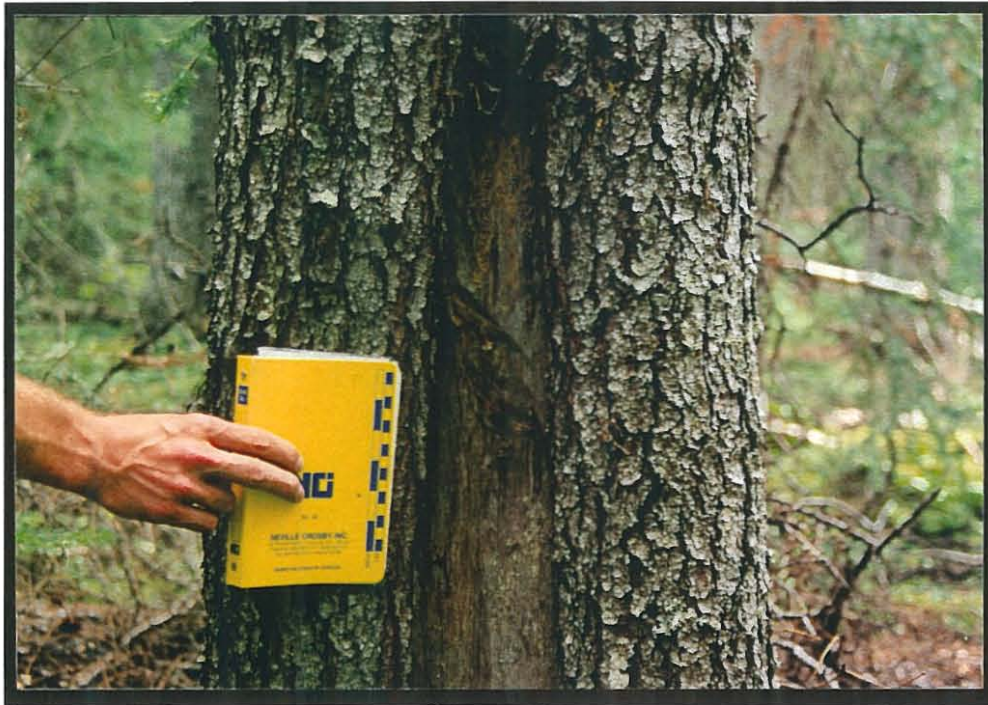
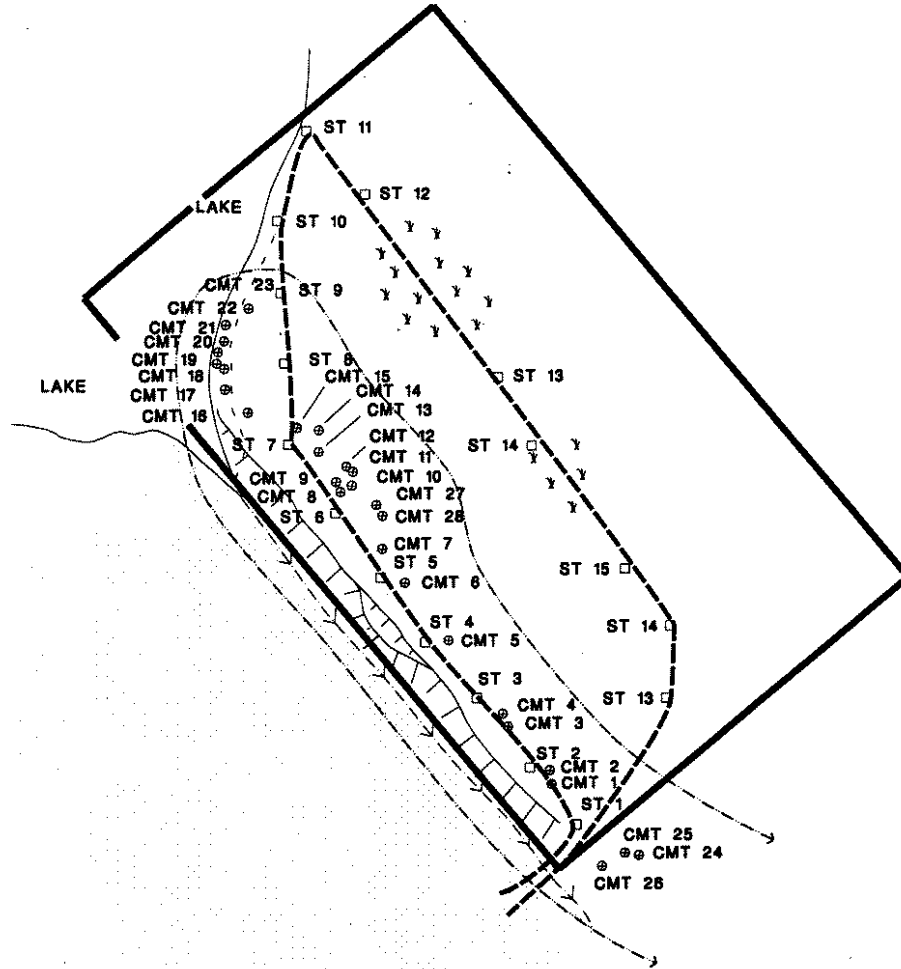


Plate 4: Close up of CMT 14 and cut marks – Area 7.



| | | | |
|--------------------------|---|------------------|-----------|
| Negative Shovel Test | ◇ | Project Boundary | — |
| Culturally Modified Tree | ⊗ | Transect | - - - |
| Swamp | ⊕ | Stream | — |
| Ridge or Terrace | ⊖ | Trail | - · - · - |
| Deforested Area | □ | Site Boundary | · - · - · |

PROJECT: Morice AOA
 TITLE: Techcha IRM Survey Area 7 and Site GgSm 2
 FIGURE: 9
 SCALE: 1:5,000

The CMTs are comprised of single and double rectangular, lenticular and triangular shaped scars (Plate 5). A number of CMTs are clustered at the lake edge along a recently cut trail while the remainder are along the creek on a raised, level terrace. It is likely that additional CMTs would be identified if the creek terrace was followed south to East Hautete Lake. Increment bore samples taken from a number of trees place the scar ages between 60 and 100 years, although one particularly large, deeply healed scar dated to approximately 135 years. Based on this older modification date, the area was recorded as archaeological site **GgSm 2**. Seventeen shovel tests were excavated within Survey Area 7; all were archaeologically negative. CMT measurements are included in Table 7.

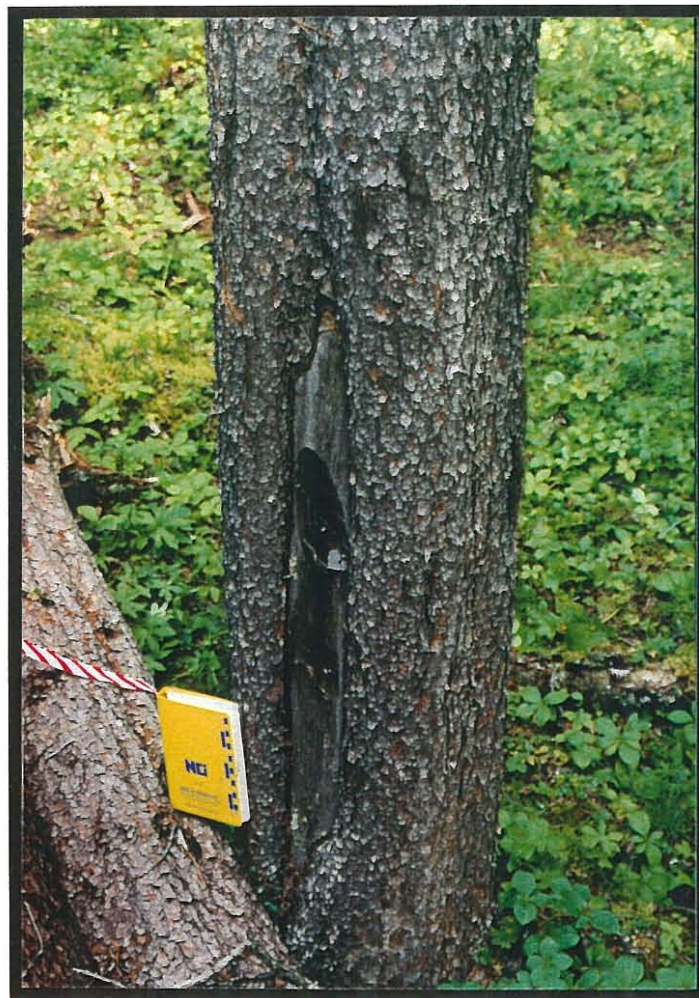


Plate 5: CMT 21 – Area 7 Scar 2.

Table 7: Area 7 (GgSm 2) CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-----|------|
| 1 | LP | BS | R | 1 | 43.5 | Flat | 110 | 14 | 7 | 20 | N | No | <100 |
| 2 | LP | BS | R | 1 | 41.5 | Flat | 35 | 5 | 8 | 70 | E | No | <100 |
| 3 | LP | BS | R | 1 | 54.0 | 30% | 97 | 13 | 9 | 29 | N | No | - |
| 4 | LP | BS | R | 1 | 40.0 | Flat | 34 | 18 | 6 | 19 | SE | No | <100 |
| 5 | LP | BS | R | 1 | 36.5 | Flat | 55 | 5 | 6 | 58 | N | No | <100 |
| 6 | LP | BS | R | 1 | 24.3 | 10% | 83 | 11 | 6 | 38 | NE | Axe | <100 |
| 7 | LP | BS | R | 1 | 40.0 | 5% | 85 | 6 | 11 | 4 | NE | No | - |
| 8 | LP | BS | L | 1 | 50.2 | Flat | 78 | 12 | 5 | 65 | SE | No | - |
| | | BS | R | 2 | 50.2 | Flat | 76 | 15 | 6 | 56 | W | No | - |
| 9 | LP | BS | R | 1 | 46.0 | Flat | 72 | 13 | 9 | 43 | SE | No | <100 |
| 10 | LP | BS | R | 1 | 46.0 | Flat | 143 | 13 | 15 | 27 | N | No | - |
| 11 | LP | BS | R | 1 | 39.0 | Flat | 62 | 11 | 9 | 25 | S | No | <100 |
| 12 | LP | BS | R | 1 | 35.0 | Flat | 37 | 10 | 5 | 97 | S | No | - |
| 13 | LP | BS | R | 1 | 35.0 | Flat | 137 | 11 | 4 | 5 | N | No | <100 |
| 14 | LP | BS | T | 1 | 46.5 | Flat | 140 | 10 | 9 | 38 | SE | No | 95 |
| | | BS | R | 2 | 46.5 | Flat | 114 | 15 | 8 | 5 | NW | Axe | - |
| 15 | LP | BS | L | 1 | 50.2 | Flat | 135 | 12 | 15 | 0 | N | No | - |
| 16 | LP | BS | L | 1 | 39.0 | Flat | 170 | 14 | 11 | 75 | N | No | - |
| 17 | LP | BS | T | 1 | 62.5 | Flat | 112 | 9 | 17 | 0 | S | No | - |
| 18 | LP | BS | L | 1 | 41.5 | Flat | 90 | 14 | 8 | 41 | NE | No | 90 |
| | | BS | R | 2 | 41.5 | Flat | 45 | 8 | 10 | 60 | NE | No | - |
| 19 | LP | BS | R | 1 | 39.5 | Flat | 23 | 3 | 12 | 91 | E | No | <100 |
| | | BS | R | 2 | 39.5 | Flat | 112 | 21 | 4 | 0 | NW | No | - |
| 20 | LP | BS | R | 1 | 47.0 | Flat | 44 | 4 | 13 | 112 | E | No | 65 |
| | | BS | R | 2 | 47.0 | Flat | 42 | 8 | 7 | 56 | NW | No | - |
| 21 | LP | BS | L | 1 | 36.0 | Flat | 107 | 8 | 7 | 45 | NE | No | 78 |
| | | BS | L | 2 | 36.0 | Flat | 92 | 11 | 5 | 28 | W | Axe | - |
| 22 | LP | BS | L | 1 | 50.0 | Flat | 72 | 13 | 5 | 10 | SE | No | - |
| 23 | LP | BS | L | 1 | 51.0 | Flat | 64 | 3 | 14 | 50 | S | No | 135 |
| 24 | LP | BS | R | 1 | 49.5 | Flat | 100 | 14 | 11 | 14 | S | No | <100 |
| 25 | LP | BS | R | 1 | 39.5 | Flat | 140 | 17 | 5 | 5 | NW | No | <100 |
| 26 | LP | BS | R | 1 | 48.0 | 55% | 120 | 8 | 11 | 35 | SE | No | - |
| 27 | LP | BS | R | 1 | 47.0 | Flat | 135 | 15 | 9 | 17 | N | No | - |
| 28 | LP | BS | R | 1 | 37.0 | Flat | 153 | 19 | 5 | 13 | N | No | - |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar
WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

Area 8 is located at about 850 m ASL between two small lakes along the Hautete Creek drainage between Nakinilerak Lake and Hautete Lake (Figure 10). Hautete Creek connects the two unnamed lakes. The area within 50 m of both lakeshores and the creek was considered to have moderate archaeological potential.

Transects were walked east into the survey block off Nakinilerak Road down a very steep embankment to Hautete Creek and the two lakes. Transects then followed the bank edges to the north and were returned in full in a southerly direction (Figure 11). Forest cover consists primarily of spruce, sub-alpine fir and alder, with only minimal lodgepole pine. Seven CMTs were identified and recorded within Survey Area 8, five by the southern lake and creek confluence, two by the northern lake and creek confluence. All but CMT 1, a lenticular shaped scar (Plate 6), are rectangular bark stripped lodgepole pine trees. CMT locations measured from Shovel Test 1, located 100 m due north of the confluence of Hautete Creek and the northernmost lake. CMTs 3 and 4 are standing but dead and CMT 7 is a fallen tree. Increment bore samples were consistent in the approximate scar age of 100 years and thus the trees are not considered of sufficient age to be archaeologically recorded. No archaeological or cultural resources were identified in any of shovel tests. Table 8 includes CMT measurements.

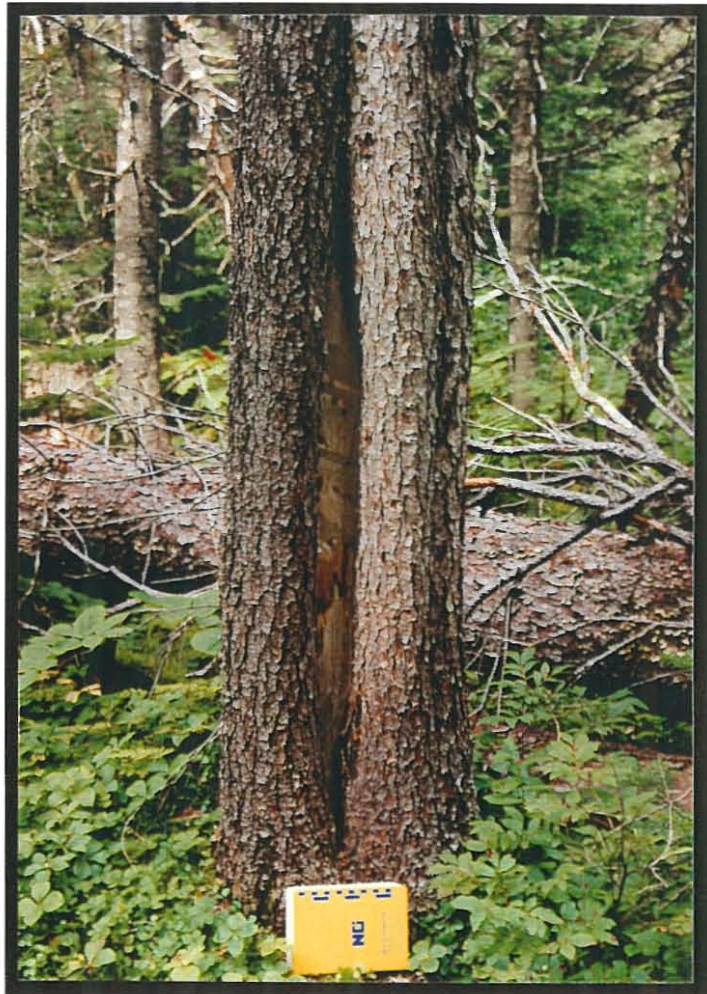
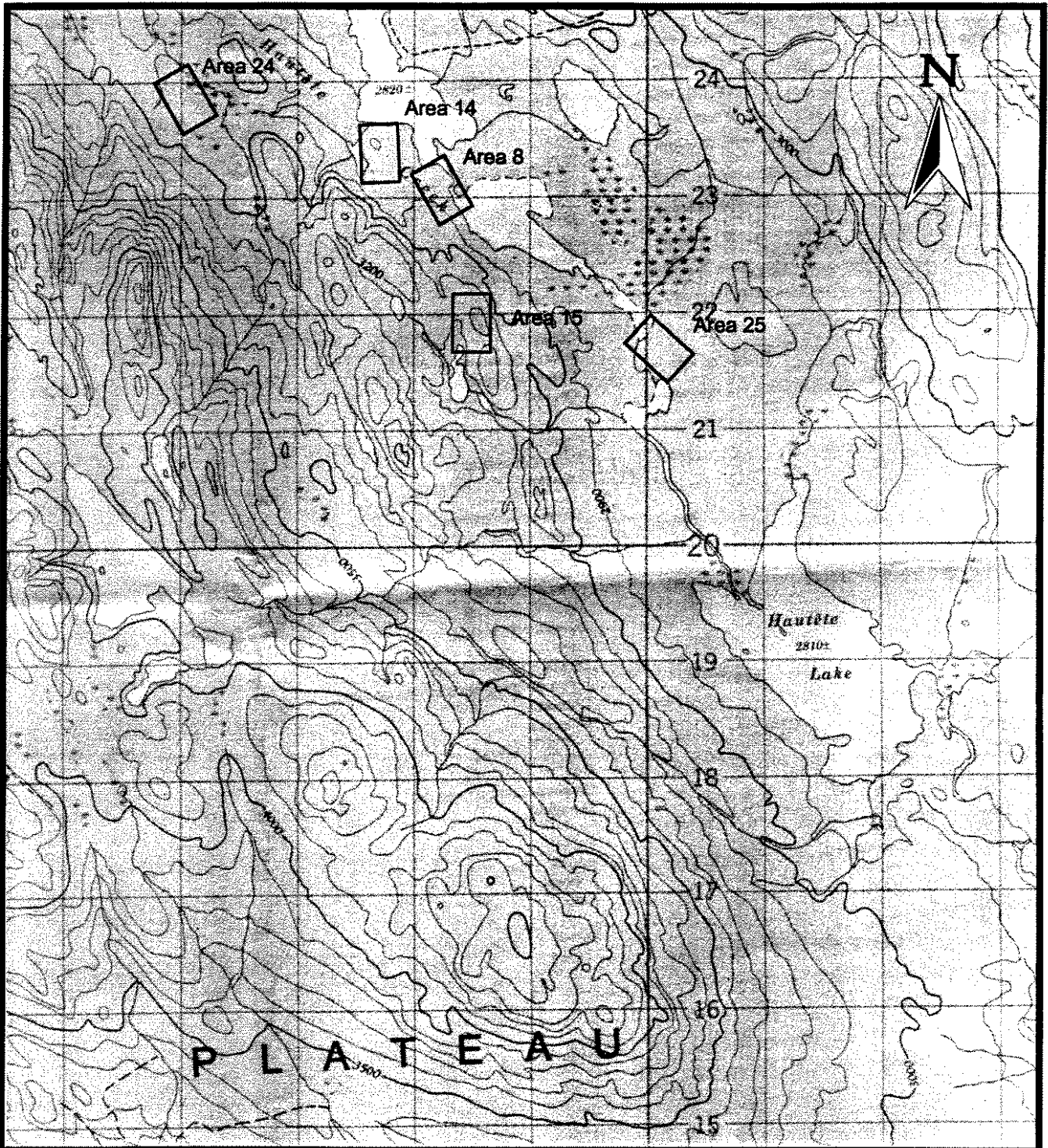


Plate 6: CMT 1 – Area 8.



Survey Area



Project:
Title:

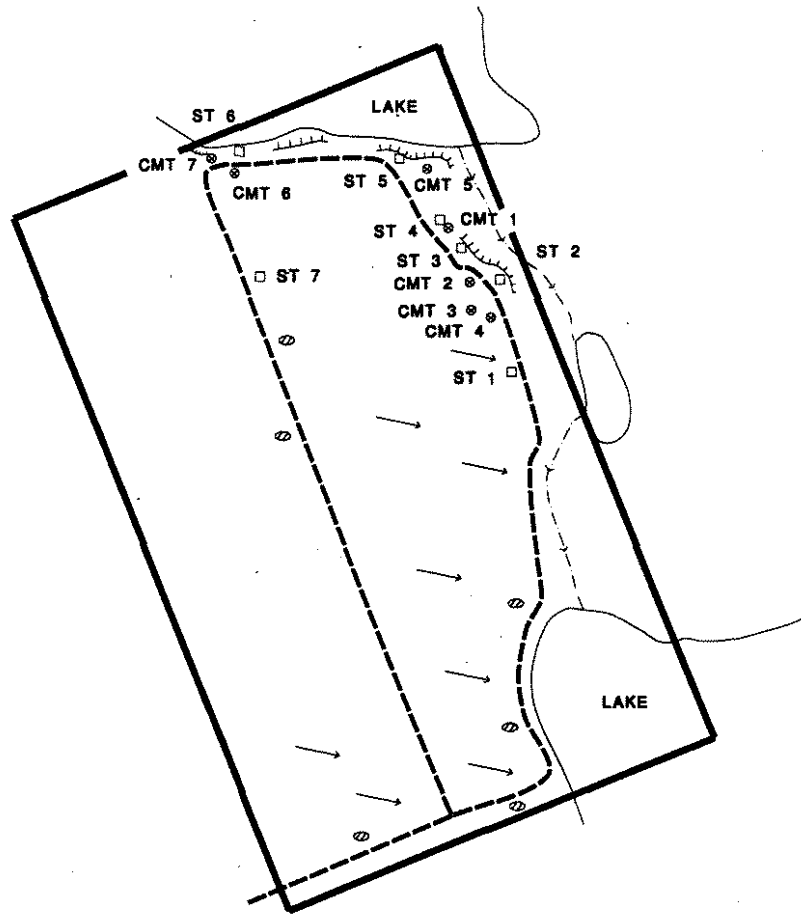
Morice AOA
Tochcha IRM Project Location,
Areas 8, 14, 15, 24 and 25






Figure:





10

Scale:

1:50,000 (93 M/1)



Negative Shovel Test 
 Culturally Modified Tree 
 Swamp 
 Tree Throw 
 Points Down Slope 

Project Boundary 
 Transect 
 Stream 
 Ridge or Terrace 

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 8
 FIGURE: 11
 SCALE: 1:5,000

Table 8: Area 8 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | L | 1 | 38.5 | Flat | 124 | 6 | 8 | 14 | SE | Axe | 100 |
| 2 | LP | BS | R | 1 | 34.5 | Flat | 93 | 10 | 8 | 48 | NW | - | 95 |
| | | BS | R | 2 | 34.5 | Flat | 66 | 8 | 10 | 15 | S | - | - |
| 3 | LP | BS | R | 1 | 21.5 | 5% | 148 | 14 | 8 | 0 | NE | - | 95 |
| 4 | LP | BS | R | 1 | 22 | 3% | 80 | 9 | 2 | 0 | N | - | 100 |
| 5 | LP | BS | R | 1 | 37 | Flat | 108 | 22 | 5 | 20 | SE | - | 95 |
| 6 | LP | BS | R | 1 | 60.5 | Flat | 72 | 11 | 9 | 15 | N | - | - |
| 7 | LP | BS | R | 1 | 40 | Flat | 85 | 6 | 10 | 82 | E | Axe | - |
| | | BS | R | 2 | 40 | Flat | 94 | 20 | 6 | 80 | W | - | - |

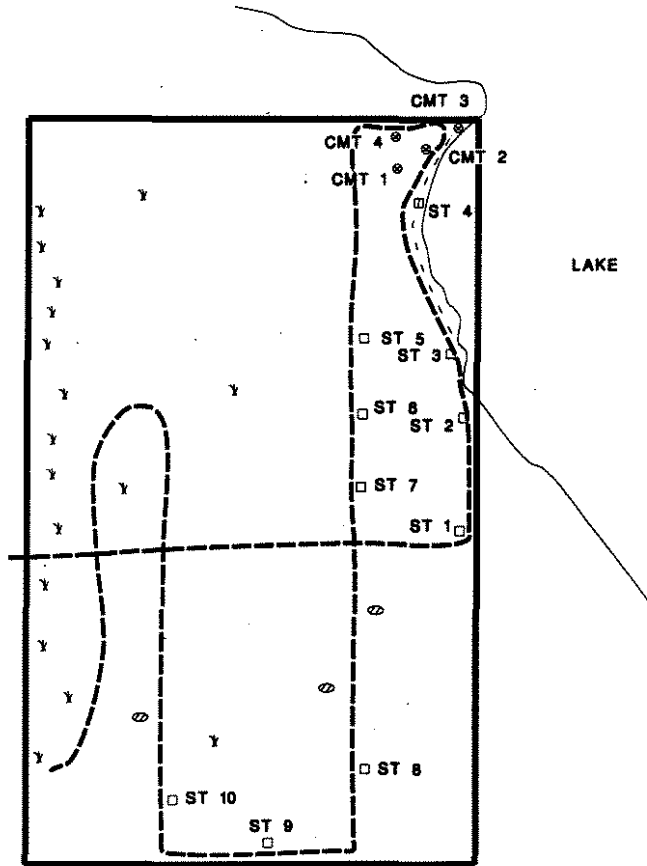
SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular, L=lenticular, T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar





WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters




Area 14 is approximately 850 m ASL and is situated to the immediate northwest of Survey Area 8 between a small, marshy unnamed lake and the larger, northern unnamed lake of Area 8 (Figure 10). The area within 50 m of both unnamed lakes is the moderate archaeological potential zone.

Transects were walked between the smaller, marshy lake edge to the west and the larger lakeshore to the northeast (Figure 12). Forest cover and vegetation consist primarily of spruce and lodgepole pine with a dense understorey of devil's club and immature alder. Terrain along the larger lake edge is generally flat and slightly terraced; terrain between the two lakes was poorly drained and marshy.

Four CMTs were identified and recorded within Survey Area 14 along the edge of the larger, unnamed lakeshore. All CMTs evidence single rectangular bark stripped scars, with the exception of CMT 4, on which three distinct scars were identified, and CMT 3, which evidences a lenticular scar. Scar dates range from 50 – 70 years old and are thus not considered old enough to record as an archaeological site. Distinct knife cut marks were identified on CMT 1 (Plate 7). All shovel tests excavated in Survey Area 14 were archaeologically negative. CMT measurements are included in Table 9.



Negative Shovel Test 
Culturally Modified Tree 
Swamp 
Tree Throw 

Project Boundary 
Transect 
Trail 

PROJECT: Morice AOA
TITLE: Tochocha IRM Survey Area 14
FIGURE: 12
SCALE: 1:5,000

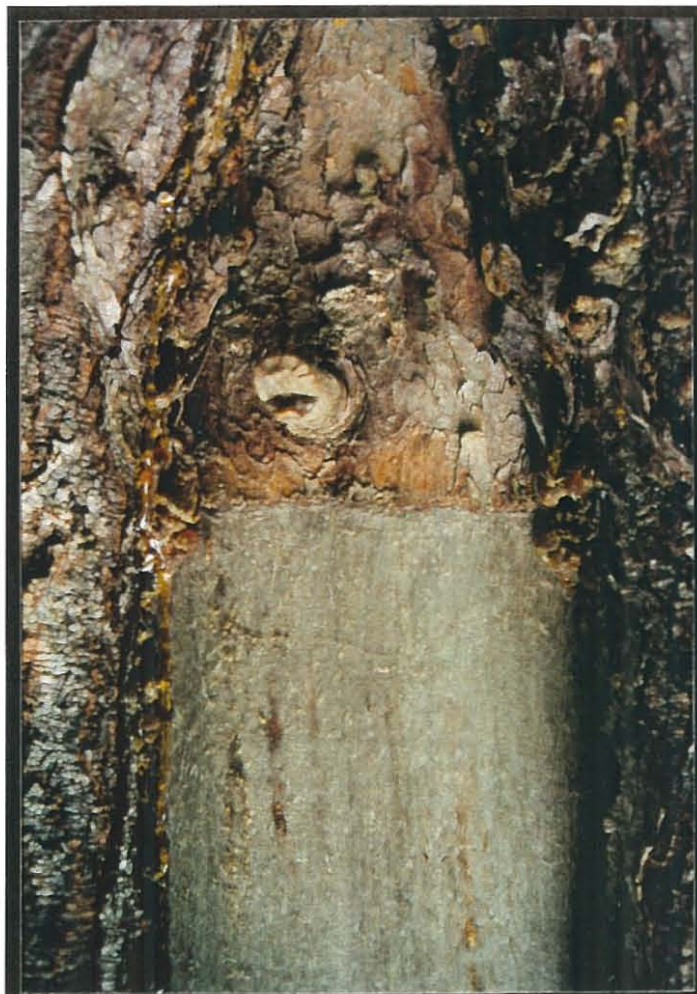


Plate 7: CMT 1 – Area 14.

Table 9: Area 14 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-------|-----|
| 1 | LP | BS | R | 1 | 58.3 | Flat | 55 | 15 | 4 | 135 | N | knife | 68 |
| 2 | LP | BS | R | 1 | 47.1 | Flat | 59 | 7 | 4 | 63 | NE | - | 52 |
| 3 | LP | BS | L | 1 | 42 | Flat | 147 | 11 | 7.5 | 0 | E | - | 48 |
| 4 | LP | BS | R | 1 | 46 | 5% | 170 | 9 | 3 | 0 | W | - | 50 |
| | | BS | R | 2 | 46 | 5% | 79 | 7.5 | 7 | 20 | SW | - | - |
| | | BS | R | 3 | 46 | 5% | 33 | 1 | 6 | 99 | E | - | 65 |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

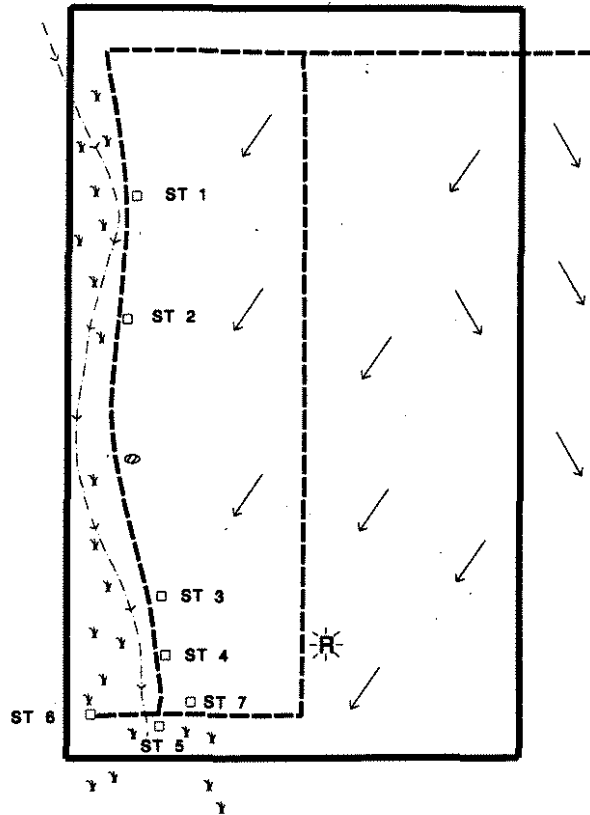
Area 15 is located in an elevated area about 950 m ASL adjacent to a small lake and seasonal drainage, due south of and up a steep hill from Area 8 (Figure 10). Terrain is generally quite steep. The area within 50 m of the small high elevation lake is a moderate archaeological potential zone.

Transects were walked up the very steep terrain to a seasonal drainage running south into the lake. Stream banks are steep sided with no evident terracing. Transects continued around the north tip of the lake where terrain is poorly drained and marshy. Return transects were walked up the steep hill to the north and continued down the other side (Figure 13). Forest cover consists of dense spruce and devil's club on the northeast side of the hill and relatively open lodgepole pine forest on the southwest side. Seven shovel tests were excavated along the transects bordering the seasonal stream and lake; none were excavated on the > 40 % sloped areas.

No archaeological resources and/or CMTs were identified within Survey Area 15.

Area 16 is located about 800 m ASL at the confluence of Hautete Creek and an unnamed creek due south of Hautete Lake (Figure 4). Both creeks are considered to be of moderate archaeological potential within 50 m of their shores.

Transects were walked parallel to the unnamed creek and Hautete Creek, up a very steep embankment perpendicular to Hautete Creek, and returned paralleling the creeks up on a high terrace above the steep embankment (Figure 14). Tree cover consists of a relatively open spruce, lodgepole pine, sub-alpine fir forest with an understorey of immature alder, devil's club and huckleberry. Terrain is slightly terraced adjacent to the creeks, very steep (> 40 %) to the east of Hautete Creek and flat and terraced high above the creeks at the top of the steep embankment. Four CMTs were identified and recorded, all on the high terrace approximately 100 m east of Hautete Creek. A trail was identified along the edge of the terrace, possibly associated with the CMTs. Increment bore samples consistently dated modification to this century and thus the CMTs are not considered archaeological. No archaeological or cultural materials were identified in any of the shovel tests.



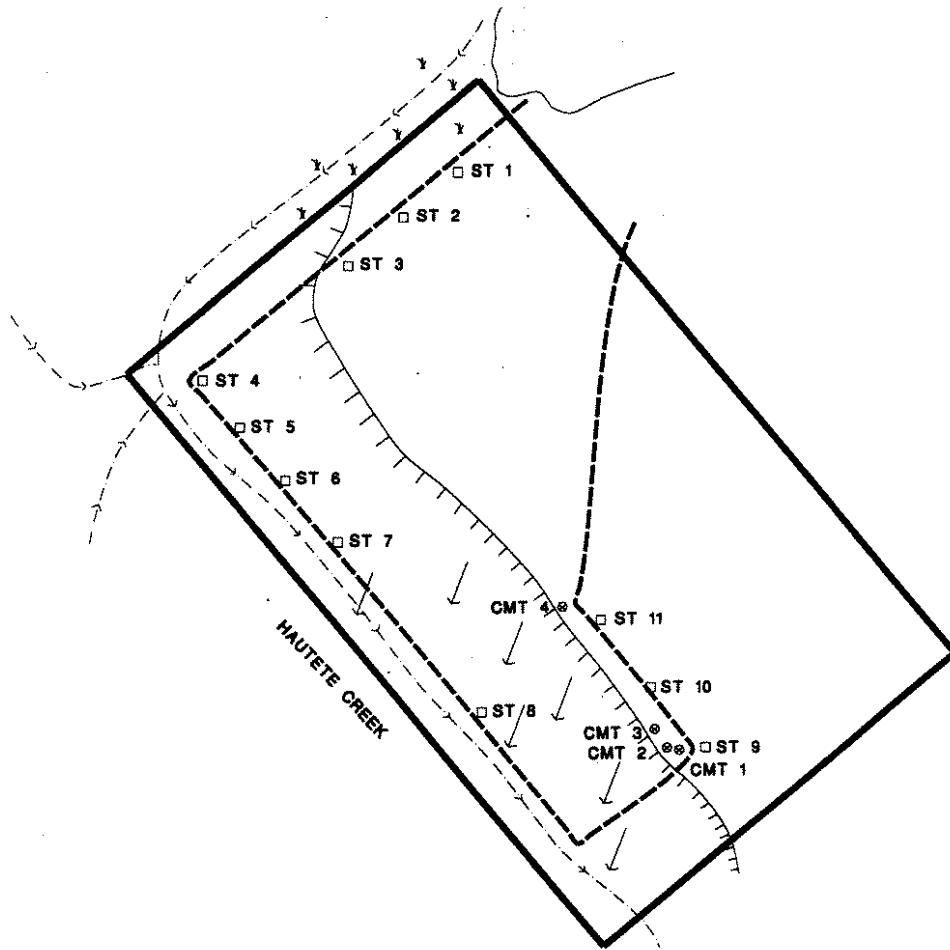
Negative Shovel Test
Swamp
Tree Throw
Rocky Area












Project Boundary
Transect
Stream
Points Down Slope



PROJECT: Morice AOA
TITLE: Tochcha IRM Area 15
FIGURE: 13
SCALE: 1:5,000



Negative Shovel Test 
 Culturally Modified Tree 
 Swamp 
 Deforested Area 

Project Boundary 
 Transect 
 Stream 
 Ridge or Terrace 
 Points Down Slope 

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 18
 FIGURE: 14
 SCALE: 1:5,000

CMT 1 is a rectangular bark stripped lodgepole pine located 425 m at 120° from the confluence of Hautete Creek and the unnamed creeks. The tree exhibits secondary axe chop marks on the bark strip scar, possibly the result of kindling removal (Plate 8). CMT 2 is also a bark stripped pine. CMTs 3 and 4 are both rectangular bark strips with no visible tool marks. CMT measurements are included in Table 10. Due to time constraints, survey within Area 16 was cut short after recording CMT 4. It is possible that more CMTs would be located with additional survey in this area, especially along the high terrace edge towards Natowite Lake.



Plate 8: CMT 1 – Area 16.

Table 10: Area 16 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|-----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | R/K | 1 | 51.6 | Flat | 122 | 21 | 8 | 0 | NE | Axe | 85 |
| 2 | LP | BS | R | 1 | 43.3 | Flat | 128 | 8 | 8 | 0 | N | - | 80 |
| 3 | LP | BS | R | 1 | 42.4 | Flat | 76 | 15 | 11 | 58 | NE | - | - |
| 4 | LP | BS | R | 1 | 39.8 | Flat | 85 | 12 | 10 | 22 | N | - | 72 |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

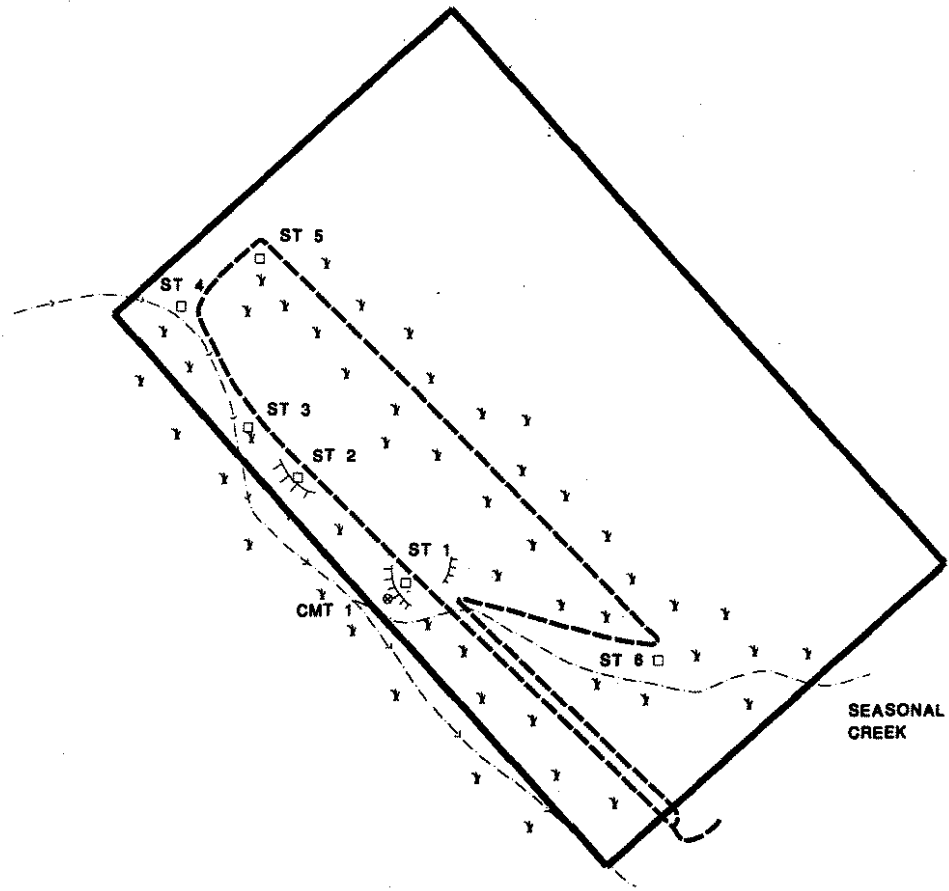
Area 18 is located in a marshy area to the south of *Area 16*, also along the eastern edge of Hautete Creek (Figure 4). A small, unnamed creek runs off Hautete Creek in the southern corner of the survey area. Elevation is approximated at 800 m ASL.

Transects were walked parallel to Hautete Creek and were returned in full. Terrain is poorly drained and marshy, with a forest cover primarily of spruce, immature alder and, in drier areas, lodgepole pine and aspen. All shovel tests were archaeologically negative. One isolated CMT was identified within Survey Area 18 within a marshy area approximately 20 m east of Hautete Creek (Figure 15). CMT 1 is a lenticular shaped bark stripped lodgepole pine, located just off the edge of a small terraced area 20 m east of the confluence of Hautete Creek and the smaller, unnamed creek. Increment boring the tree produced a relatively recent scar date of 40 years. Table 11 includes CMT measurements.

Table 11: Area 18 CMT

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|--|----|----|----|------|------|------|--|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | L | 1 | 27.5 | Flat | 62 | 8 | 4 | 76 | NE | - | 40 |
| <i>SP=species (LP=lodgepole pine)</i> <i>CL=class (BS=bark strip)</i> <i>TP=Type (R=rectangular; L=lenticular; T=triangular)</i> <i>FEAT=number of features/scars</i> <i>DBH=diameter of tree at breast height</i> <i>SLP=slope of terrain</i> <i>LEN=length of scar</i> | | | | | | | <i>WID=width of scar</i> <i>DEP=depth of scar</i> <i>HAG=height above ground</i> <i>SDE=side of tree</i> <i>TMK=tool marks</i> <i>AGE=estimated scar age based on increment bore sample</i> <i>Note: all measurements are in centimeters</i> | | | | | | |

Area 24 is about 900 m ASL and is located to the south of Nakinilerak Lake on an unnamed creek draining south from Hautete Creek (Figure 10). The unnamed creek is considered to have moderate archaeological potential within 50 m of its edge and low archaeological potential beyond. A smaller seasonal drainage runs east into the unnamed creek along the northern boundary of Survey Area 24. This creek runs along the edge of a logged cut block which also forms the west boundary of the survey area.



Negative Shovel Test
Culturally Modified Tree
Swamp



Project Boundary
Transect
Stream
Ridge or Terrace



PROJECT: Morice AOA
TITLE: Tochcha IRM Survey Area 18
FIGURE: 15
SCALE: 1:5,000

Transects paralleled the unnamed creek and were returned in full (Figure 16). Sixteen shovel tests were excavated systematically within Survey Area 24; all were archaeologically negative. Forest cover and vegetation consists primarily of spruce, subalpine fir and, in drier areas, lodgepole pine, with devil's club, berries and, bordering the marshy creeks, dense immature alder. Terrain is generally hummocky with some isolated areas of terracing adjacent to low lying, poorly drained marshy areas.

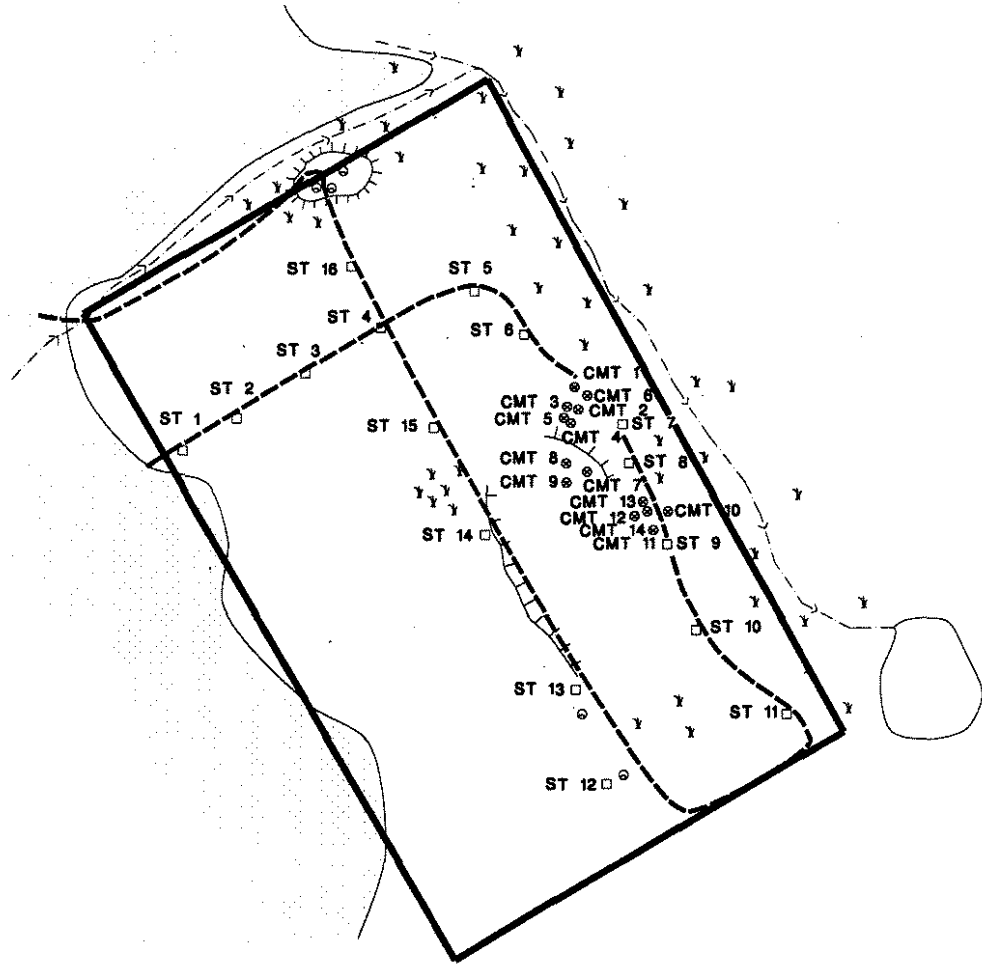
Thirteen rectangular bark stripped and one lenticular shaped bark stripped lodgepole pine CMTs were identified and recorded and several other recently blazed trees were noted. Despite the blazed trees, no identifiable trail was noted. The blazed trees were clustered in three distinct areas in no identifiable pattern. The CMTs are clustered between 50 m and 100 m from the western edge of the unnamed creek, 450 m at 120° from the northwest corner of the survey area. Increment bore samples taken from selected trees place the dates of modification to this century, and thus the CMTs are not considered archaeological. CMT measurements are included in Table 12.

Table 12: Area 24 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-------|-----|
| 1 | LP | BS | R | 1 | 40.5 | Flat | 80 | 7 | 6.5 | 81 | N | - | 65 |
| 2 | LP | BS | R | 1 | 39.2 | Flat | 109 | 17 | 2.5 | 20 | N | - | - |
| 3 | LP | BS | R | 1 | 44.6 | Flat | 99 | 11 | 6 | 33 | N | - | - |
| 4 | LP | BS | R | 1 | 39.8 | Flat | 116 | 18 | 5 | 65 | NE | - | 52 |
| 5 | LP | BS | R | 1 | 44.6 | Flat | 89 | 10 | 9 | 0 | SE | - | - |
| 6 | LP | BS | R | 1 | 34.4 | Flat | 98 | 14 | 2.5 | 31 | W | Knife | 60 |
| 7 | LP | BS | R | 1 | 42.7 | Flat | 109 | 16 | 4.5 | 51 | NW | - | - |
| 8 | LP | BS | R | 1 | 38.9 | 5% | 86 | 11 | 7 | 51 | N | - | - |
| 9 | LP | BS | R | 1 | 45.5 | Flat | 42 | 11 | 5 | 41 | SW | - | 45 |
| 10 | LP | BS | R | 1 | 30.1 | Flat | 122 | 21 | 6 | 55 | S | Knife | 60 |
| 11 | LP | BS | R | 1 | 41.0 | Flat | 93 | 17 | 5 | 60 | NW | - | - |
| 12 | LP | BS | L | 1 | 31.8 | Flat | 95 | 18 | 4.5 | 30 | W | Knife | - |
| | | BS | R | 2 | 31.8 | Flat | 47 | 10 | 5 | 108 | N | - | - |
| 13 | LP | BS | R | 1 | 35.7 | Flat | 160 | 16 | 5 | 0 | NE | - | 55 |
| 14 | LP | BS | R | 1 | 29.3 | Flat | 75 | 12 | 3 | 22 | S | - | - |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters



Negative Shovel Test □
Culturally Modified Tree ⊗
Blazed Tree ⊙
Swamp ⊖
Deforested Area □

Project Boundary ———
Transect - - - - -
Stream ~~~~~
Ridge or Terrace |||

PROJECT: Morice AOA
TITLE: Tochcha IRM Survey Area 24
FIGURE: 16
SCALE: 1:5,000

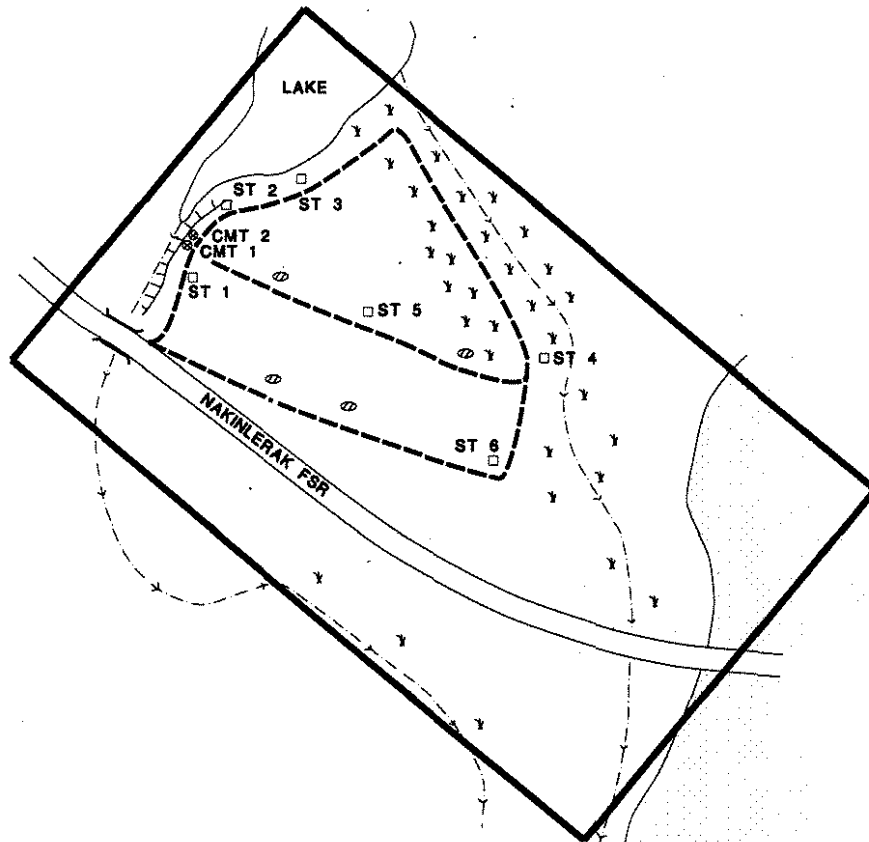
Area 25 is located north of Hautete Lake. It is bordered to the north and west by a small, marshy unnamed lake and creek, to the south by a constructed logging road, and to the east by a logged cut block and a small seasonal creek and marsh (Figure 10). Elevation is approximately 850 m ASL. The area within 50 m of the unnamed lake and northwestern creek is a moderate archaeological potential zone while the seasonal creeks and surrounding marsh are considered to be of low archaeological potential.






Transects were walked from the bridge over the unnamed creek parallel to the lakeshore, east through a marshy area parallel to the seasonal creek and returned twice through the forested area paralleling the Nakinilerak Road (Figure 17). Shovel tests were archaeologically negative. Forest cover is generally open, consisting of lodgepole pine, spruce, subalpine fir and an understorey of soapberry and huckleberry. In the marshier areas adjacent to the creeks, dense immature alder and large spruce trees dominate the vegetation.







Two CMTs were identified and recorded, both located on a terrace back from the lake edge. CMT 1 evidences a lenticular bark strip and CMT 2 evidences a rectangular bark strip, both on lodgepole pines. CMT 1 evidences distinct axe chop marks (Plate 9); CMT 2 has no visible tool marks and is dead. An increment bore sample taken from CMT 1 was inconclusive but clearly dates the modification to < 100 years. Thus, the features were not recorded as an archaeological site. CMT measurements are included in Table 13.



Plate 9: CMT 1 – Area 25.



Negative Shovel Test 
Culturally Modified Tree 
Swamp 
Tree Throw 
Deforested Area 

Project Boundary 
Transect 
Stream 
Road 
Ridge or Terrace 
Bridge 

PROJECT: Morice AOA
TITLE: Tochcha IRM Survey Area 25
FIGURE: 17
SCALE: 1:5,000

Table 13: Area 25 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 1 | LP | BS | L | 1 | 33 | 5% | 123 | 13 | 5 | 0 | N | Axe | <100 |
| 2 | LP | BS | R | 1 | 21 | 5% | 80 | 12 | 3 | 20 | W | - | - |

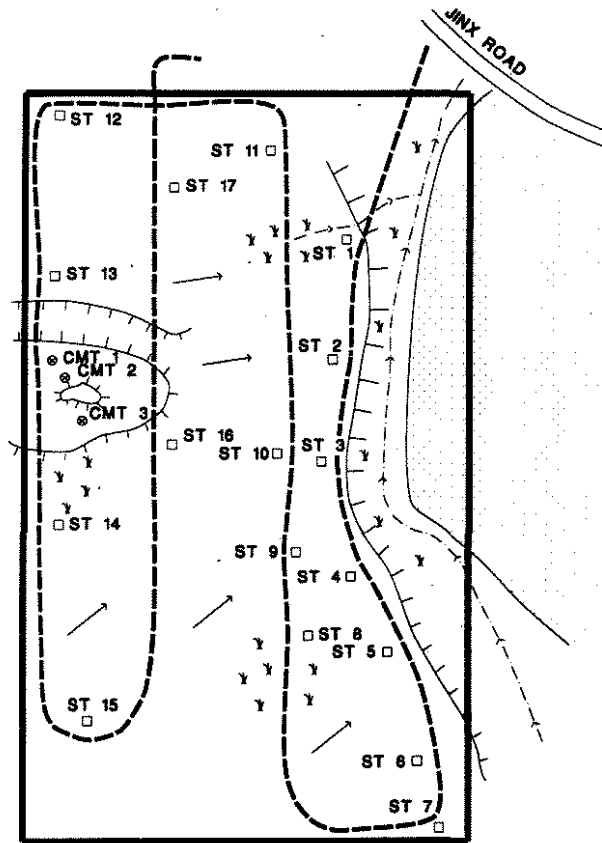
SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar






WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters






Area 26 is located about 1100 m ASL adjacent to a logged cut block off an unnamed creek to the northwest of the north tip of Natowite Lake (Figure 4). The high elevation unnamed creek is considered to have moderate archaeological potential within 50 m of its shores.

Transects were walked and returned in full paralleling the creek, and systematic shovel testing was undertaken throughout the survey area (Figure 18). Forest cover consists of spruce, subalpine fir and lodgepole pine with concentrations of primarily spruce and immature alder in the wetter areas and higher numbers of pine in the drier areas. Terrain slopes to the north and east down to the marshy creek ending in a long, flat terrace parallel to the creek. A knoll was identified along the western boundary of the survey area, bordered to the north by a deep gully. Low lying, poorly drained marshy areas are located throughout the survey area. No archaeological or cultural materials were identified in any of the shovel tests.

Three CMTs were identified and recorded on the knoll adjacent to the gully, approximately 175 m west of the unnamed creek and 300 m southwest of the Jinx FSR junction with the survey area. CMTs 2 and 3 are rectangular bark stripped lodgepole pines with no visible tool marks. CMT 1 evidences a lenticular scar. Increment bores taken from CMTs 1 and 2 place the dates of modification to between 60 and 70 years ago, and are thus not considered archaeological. CMT measurements are listed in Table 14.



Negative Shovel Test 
 Culturally Modified Tree 
 Swamp 
 Deforested Area 
 Points Down Slope 

Project Boundary 
 Transect 
 Stream 
 Road 
 Ridge or Terrace 

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 28
 FIGURE: 18
 SCALE: 1:5,000

Table 14: Area 26 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | L | 1 | 36 | Flat | 80 | 10 | 7 | 55 | N | - | 70 |
| 2 | LP | BS | R | 1 | 48.7 | Flat | 124 | 16 | 7.5 | 0 | NE | - | 60 |
| 3 | LP | BS | R | 1 | 33.6 | 10% | 40 | 11 | 4 | 66 | NE | - | - |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

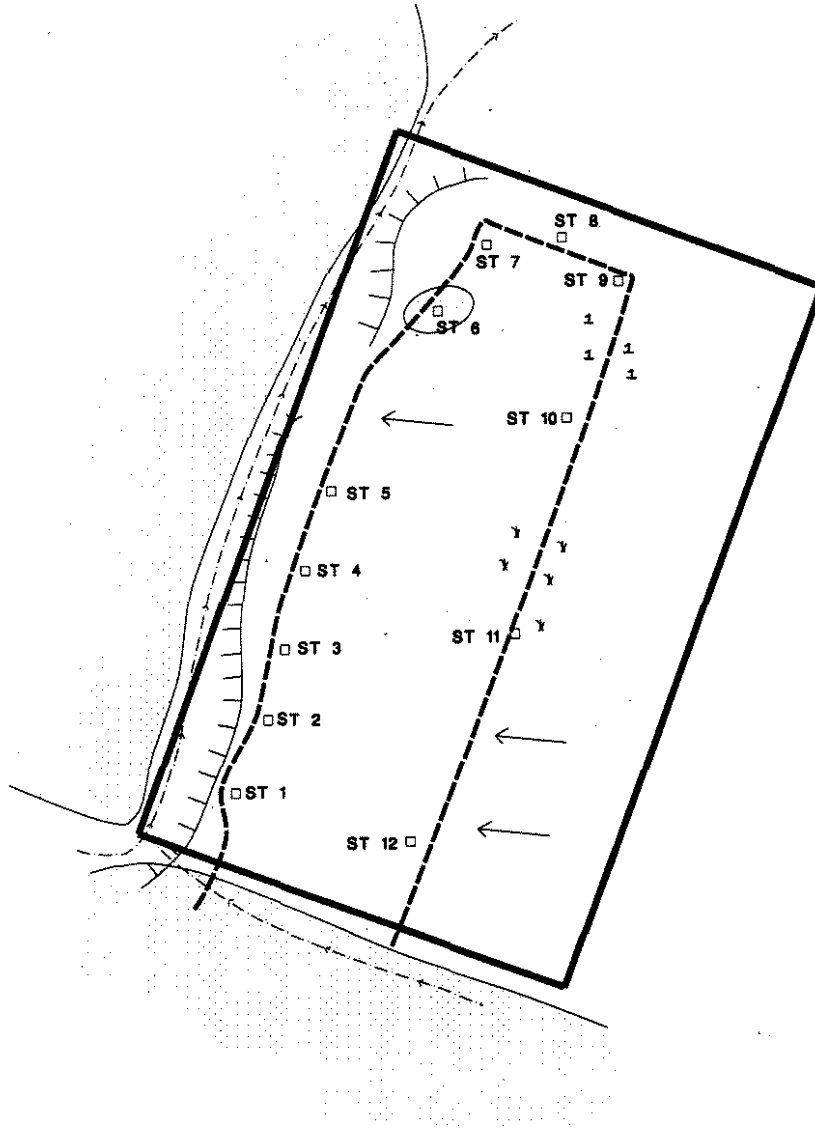
Area 27 is located just to the northeast of Area 26 at an elevation of approximately 1000 m ASL (Figure 4). An unnamed creek flows to the north along the edge of a clear cut, creating the western boundary of the survey area. A smaller, unnamed seasonal creek flows along the southern boundary of the survey area. The area within 50 m of the larger creek falls within a moderate potential zone.

Transects were walked parallel to the larger creek and were returned in full (Figure 19). Shovel tests were excavated systematically along survey transects. Forest cover consists primarily of subalpine fir, spruce and a few lodgepole pine with an understorey of devil's club, huckleberry and immature alder. Beetle infested pine trees, some tagged with numbers for future removal and others already cut and removed, were noted within the survey area. Terrain slopes steeply down to the creek throughout most of the area with some terracing immediately adjacent to the creek.

No archaeological resources and/or CMTs were identified within Survey Area 27.

Area 28 is located at 900 m ASL to the north east of Area 27 between two unnamed creeks flowing east into the Hautete Creek drainage (Figure 4). Both unnamed creeks are considered to have moderate archaeological potential within 50 m of their shores.

Forest cover in Survey Area 28 consists primarily of lodgepole pine, spruce, subalpine fir and, in the wetter areas, cottonwood, with a relatively open understorey of long grasses, berries and devil's club. A high number of the lodgepole pine trees were beetle infested, many baited with traps and marked for future removal. Due to the infestation, a number



Negative Shovel Test □
 Culturally Modified Tree ⊗
 Swamp Y
 Blowdown T
 Deforested Area [dotted box]

Project Boundary ———
 Transect - - - -
 Stream - · - · -
 Ridge or Terrace - / - / - / -
 Points Down Slope →

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 27
 FIGURE: 19
 SCALE: 1:5,000

of the pine trees are dead or dying. Terrain is generally hummocky throughout most of the survey area. However, terrain in the southern portion of the block is dominated by a large, flat terrace, high above and between 75 and 150 m from the unnamed creek. The terrace drops steeply down to the creek with an area of generally flat floodplain immediately adjacent to the creek.

Two hundred and fifty-seven CMTs and two cultural depressions were identified and recorded within Survey Area 28 (Figure 20; Plate 10). The features were recorded as archaeological site **GgSm 3**. The trees are located throughout the forest on the north side of the southern creek. The cultural depressions and the heaviest concentrations of CMTs are located on the high, flat terrace approximately 100 m above the creek. A trail was identified following the terrace to the west, but could not be identified further east due to a large clear cut that borders the east portion of the survey area. CMTs are located not only up on the terrace and back into the forest, but also on the down slope towards the creek and in the flat area adjacent to the creek and marshy area. Many of the CMTs, specifically those up on the terrace, are beetle infested. In fact, a number of CMTs had been baited and tagged with traps and bark beetle warnings. As a consequence, a high number of the CMTs are dead or dying.

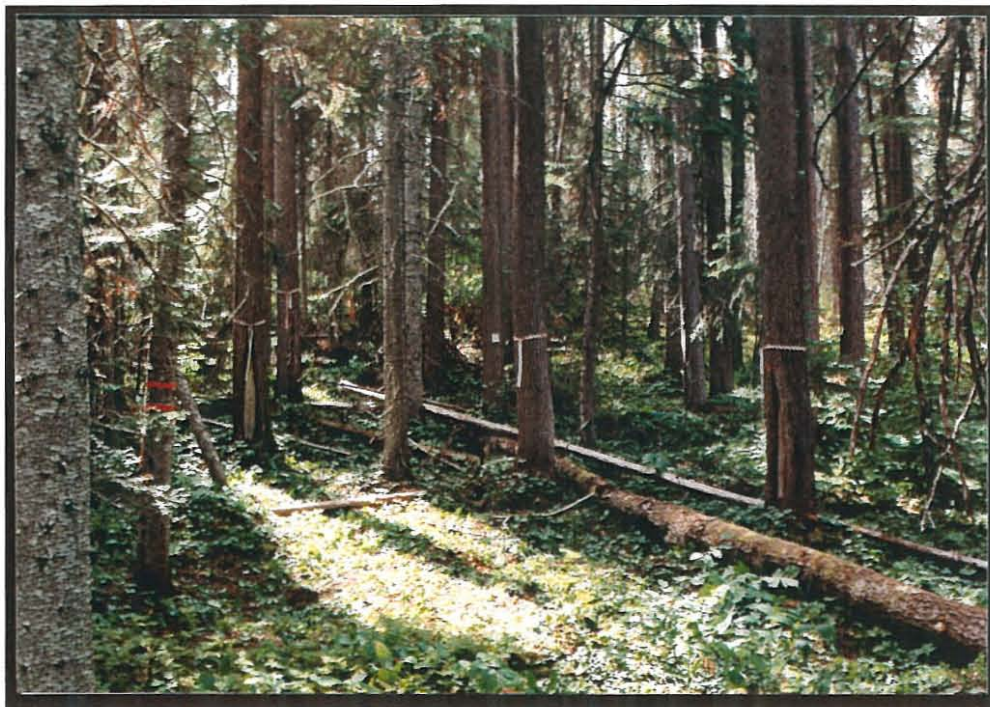


Plate 10: Striped flagging indicates CMT locations.

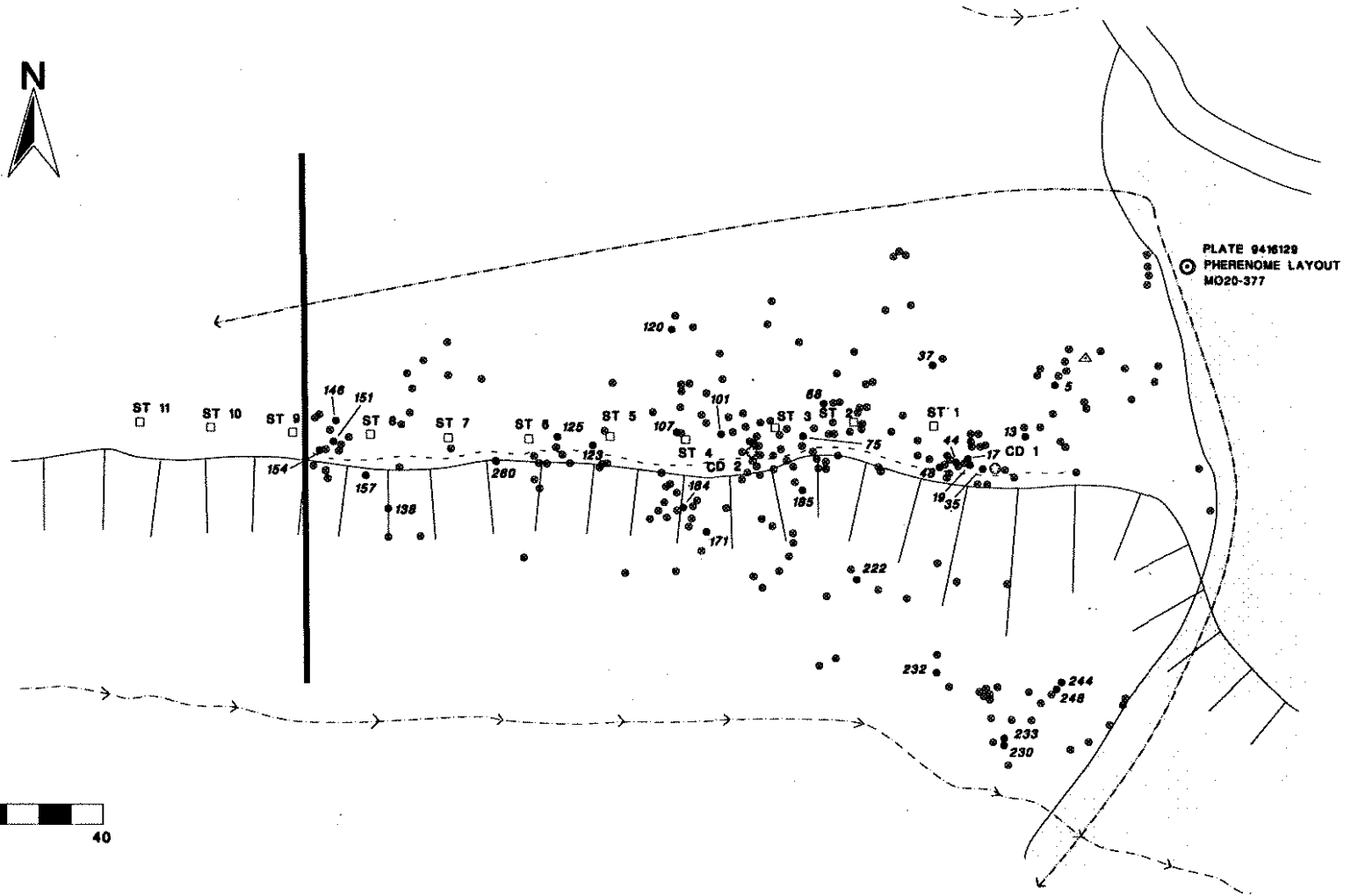


PLATE 9416129
 PHERENOME LAYOUT
 MO20-377

- | | | | |
|-------------------------------------|---|------------------|---------|
| Negative Shovel Test | □ | Project Boundary | — |
| Culturally Modified Tree, Sampled | ● | Stream | — — — — |
| Culturally Modified Tree, Unsampled | ○ | Road | — — — — |
| Cultural Depression | ⊙ | Trail | — — — — |
| Deforested Area | □ | Ridge or Terrace | — — — — |
| Information Plate | ⊙ | Site Boundary | — — — — |
| Site Datum | △ | | |

PROJECT: Morice AOA
 TITLE: Tochcha IRM Survey Area 28 and Site GgSm 3
 FIGURE: 20
 SCALE: 1:2,000

A site datum was established to record the CMTs and cultural depressions. Due to the high number of CMTs, only tree locations, tree species, number of scars and the presence or absence of tool marks were recorded. All modified trees are lodgepole pines, many exhibiting axe chop (Plate 11) or knife cut marks (Plate 12).



Plate 11: CMT 17 – Area 28. Note axe cut marks.

The majority of CMTs evidence rectangular bark strips, likely the result of stripping for cambium. Scar shapes vary from straight to diagonal at the top of the scar (Plate 13). A number of trees evidence lenticular or triangular shaped scars. Several of the trees have multiple scars, some as many as four. Increment bore samples were taken from a selection of living CMTs; dates range from 30 to 115 years for scar age. Table 15 includes all approximate scar ages, number and type of CMTs with visible tool marks and/or those increment bore sampled.



Plate 12: CMT 233 – Area 28. (Close up) Knife cut marks.

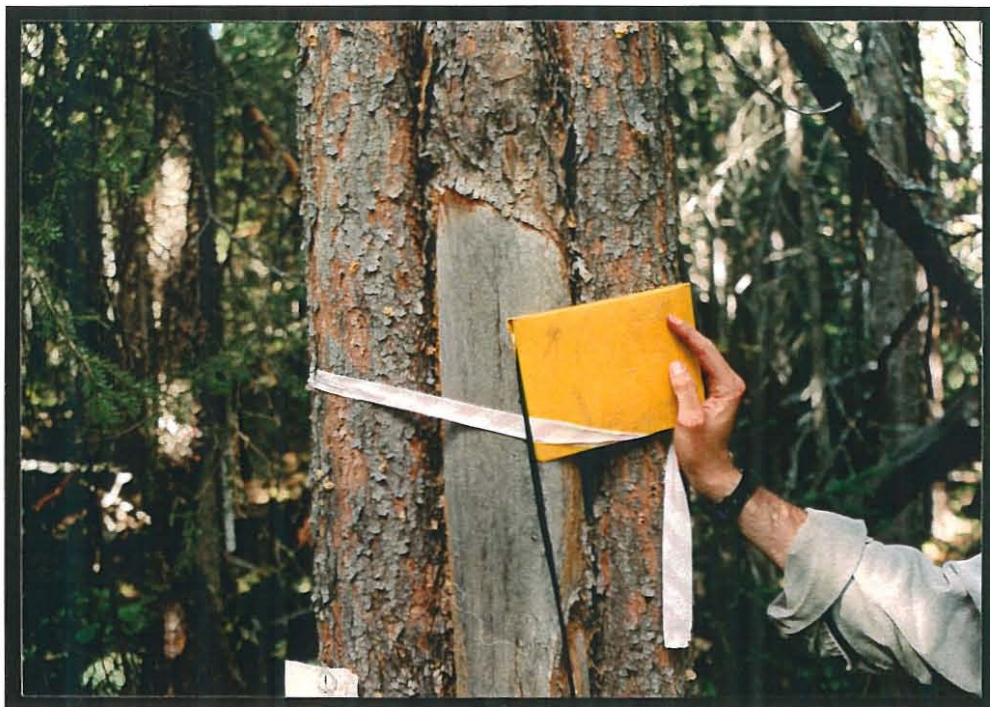


Plate 13: CMT 107 Angular cut.

Table 15: Area 28 (GgSm 3) Selected CMTs

| CMT | Species | Class | Type | Features Number | Tree Side | Tool Marks | Age (Years) |
|-----|----------------|------------|-------------|-----------------|-----------|------------|-------------|
| 5 | Lodgepole pine | Bark strip | Rectangular | 1 | N | - | 60-75 |
| 13 | Lodgepole pine | Bark strip | Rectangular | 1 | N | Axe | - |
| | | Bark strip | Rectangular | 2 | S | - | - |
| 17 | Lodgepole pine | Bark strip | Lenticular | 1 | NE | Axe | - |
| 19 | Lodgepole pine | Bark strip | Rectangular | 1 | N | Axe | 110 |
| 35 | Lodgepole pine | Bark strip | Rectangular | 1 | N | - | 100-110 |
| 37 | Lodgepole pine | Bark strip | Triangular | 1 | NW | - | 50-65 |
| 44 | Lodgepole pine | Bark strip | Rectangular | 1 | N | Axe | - |
| 48 | Lodgepole pine | Bark strip | Rectangular | 1 | E | Axe | - |
| | | Bark strip | Lenticular | 2 | E | - | - |
| | | Bark strip | Lenticular | 3 | N | - | - |
| 68 | Lodgepole pine | Bark strip | Rectangular | 1 | E | - | 50 |
| | | Bark strip | Rectangular | 2 | S | - | 40 |
| | | Bark strip | Lenticular | 3 | N | - | - |
| 75 | Lodgepole pine | Bark strip | Rectangular | 1 | NE | - | 106 |
| | | Bark strip | Rectangular | 2 | N | - | - |
| 101 | Lodgepole pine | Bark strip | Rectangular | 1 | S | Axe | 95 |
| | | Bark strip | Rectangular | 2 | S | Axe | - |
| | | Bark strip | Lenticular | 3 | W | - | - |
| | | Bark strip | Lenticular | 4 | N | - | - |
| 107 | Lodgepole pine | Bark strip | Rectangular | 1 | S | Knife | - |
| | | Bark strip | Rectangular | 2 | W | Axe | - |
| 120 | Lodgepole pine | Bark strip | Rectangular | 1 | W | - | 30-50 |
| 123 | Lodgepole pine | Bark strip | Rectangular | 1 | N | - | 90-100 |
| 125 | Lodgepole pine | Bark strip | Triangular | 1 | W | Axe | - |
| | | Bark strip | Rectangular | 2 | E | - | - |
| 138 | Lodgepole pine | Bark strip | Rectangular | 1 | N | - | 110-115 |
| 146 | Lodgepole pine | Bark strip | Rectangular | 1 | N | Axe | - |
| 151 | Lodgepole pine | Bark strip | Rectangular | 1 | S | - | 40-70 |
| 154 | Lodgepole pine | Bark strip | Rectangular | 1 | NE | Axe | - |
| 157 | Lodgepole pine | Bark strip | Rectangular | 1 | N | - | 89-95 |
| 171 | Lodgepole pine | Bark strip | Lenticular | 1 | N | Axe | - |
| 184 | Lodgepole pine | Bark strip | Lenticular | 1 | S | Axe | - |
| 185 | Lodgepole pine | Bark strip | Rectangular | 1 | NE | - | 70-75 |
| | | Bark strip | Rectangular | 2 | SE | - | - |
| 222 | Lodgepole pine | Bark strip | Rectangular | 1 | E | Axe | - |
| 230 | Lodgepole pine | Bark strip | Rectangular | 1 | W | Knife | 70 |
| | | Bark strip | Rectangular | 2 | SE | Knife | 75 |
| 232 | Lodgepole pine | Bark strip | Rectangular | 1 | SE | - | 72-100 |
| 233 | Lodgepole pine | Bark strip | Rectangular | 1 | NE | Knife | - |
| 244 | Lodgepole pine | Bark strip | Rectangular | 1 | S | Axe | - |
| 248 | Lodgepole pine | Bark strip | Lenticular | 1 | NE | Axe | - |
| 260 | Lodgepole pine | Bark strip | Rectangular | 1 | NE | - | 62 |

The cultural depressions (CDs) in Survey Area 28 are most likely cache pits. CD 1 is located 40 m at 220° from the site datum. It measures 1 m x 1 m and is 50 cm in depth. CD 2 is 1 m x 70 cm and 50 cm in depth. Both depressions are adjacent to the trail on the edge of the terrace within the heaviest concentrations of CMTs. A series of shovel tests were excavated along the trail and the terrace edge. Despite the presence of the CMTs and cache pits, all tests were archaeologically negative.

It is highly probable that additional CMTs are present to the west of Survey Area 28. Due to time constraints and the high number of CMTs present, Survey Area 28 was divided in half from north to south. The portion west of the dividing line was left unsurveyed. However, CMTs were noted as the terrace continues west high over the creek. CMTs likely also continue to the east through what is now a large, replanted clear cut. Thus, GgSm 3 boundaries are only estimated.

5.4 Owen-McBride IRM Unit Archaeological Inventory Study

Twenty-nine survey areas, 15 ha each, were plotted on 1:20,000 maps prior to field survey. Areas were plotted in proximity to various water sources of differing potential varying elevations and differing aspect.

Thirteen of the 29 mapped “blocks” were surveyed in the Owen-McBride study area. Twelve CMTs were identified and recorded within four of these survey areas. All CMTs were bark stripped and/or kindling scarred lodgepole pine trees, some exhibiting tool marks such as axe cuts or knife marks. None of the trees that were increment bored had scars pre-dating 1846. In addition to the CMTs, one cultural depression, a possible cache pit, was also identified. Trails were identified in two of the survey areas.

Three of the 13 surveyed blocks, or 23.1% were adjacent to lakes: two were on unnamed lakes and one was on a named (McBride) lake. Two of the surveyed areas adjacent to lakes had a northern aspect (i.e., on the south shore of the lake) and one had a southern aspect. Two of the three survey areas on lakes had moderate potential creeks within their boundaries, while the other area had a low potential creek. Of the remaining ten survey areas, four or 30.1% were adjacent to the Morice River, three or 23.1% had exclusively

moderate potential creeks within their boundaries and two or 15.4% had exclusively low potential creeks within their boundaries. The remaining one survey area had a moderate and two low potential creek within or adjacent to its boundaries. In terms of approximating elevation. Three areas were at low elevation, approximately 680 m ASL, three were at 760 m, one area was at 780 m, three areas were at approximately 800 m, one was at 970 m and three areas were at high elevation, approximately 1000 m ASL.

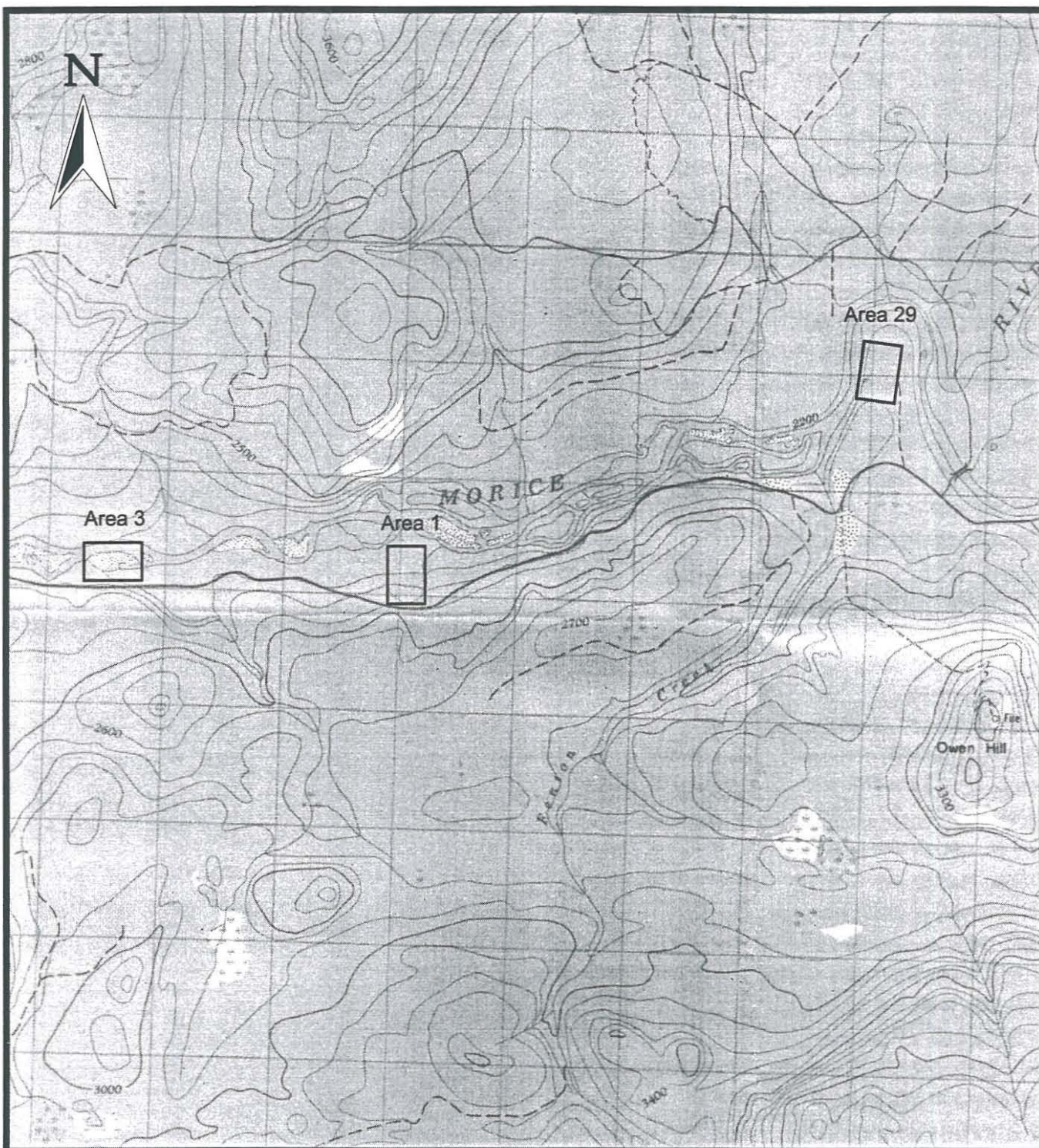
5.4.1 Survey Area Results and Summaries

Area 1 is located just off the southern shore of the Morice River in the northeast portion of the study area at an approximate elevation of 680 m ASL (Figure 21). A moderate potential creek runs through the survey area. Based on the archaeological potential mapping, the area from 0 to 100 m the river was considered to have high archaeological potential, while the area between 100 - 200 m was considered to have moderate archaeological potential. The area within 50 m of the unnamed creek was considered to be of moderate potential.

Area 1 is located on the north side of the Morice West Road at 31.5 km and is oriented north/south. Transects were walked north to the Morice River from the road and west along the embankment and raised ridges of the river's southern bank (Figure 22). Forest cover consists of spruce, aspen and large cottonwoods with an open understorey of soapberry and immature alder. Terrain is steeply sloped down to the Morice River where it levels off into a poorly drained marshy area broken by occasional ridges and terraces. Six shovel tests were excavated in Survey Area 1; no archaeological or cultural materials were identified.

No archaeological resources and/or CMTs were identified within Survey Area 1.

Area 3 is located on a marshy spit of land jutting into the Morice River on its southern shore at an approximate elevation of 680 m ASL (Figure 21). Survey Area 3 was considered to be of high archaeological potential within 100 m of the river and of moderate potential between 100 and 200 m.



Survey Area



Project:

Morice AOA

Title:

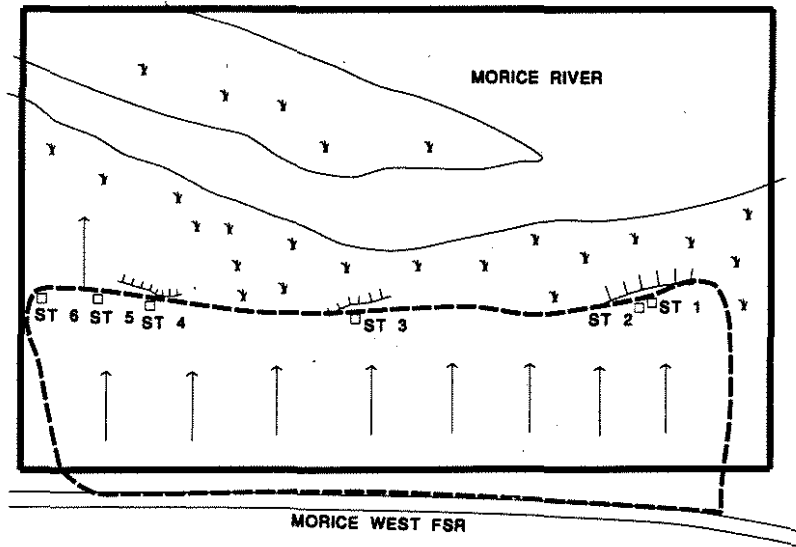
Owen-McBride Project Locations,
Survey Areas 1, 3, and 29

Figure:

21

Scale:

1:50,000 (093 L/2)



Negative Shovel Test
Swamp
Ridge or Terrace
Points Down Slope



Project Boundary
Transect
Road



PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 1
FIGURE: 22
SCALE: 1:5,000

Area 3 is located on the north side of the Morice West FSR road at 34 km and is oriented east/west. Transects were walked north to the Morice River from the Morice West FSR and west along the embankment and elevated ridges and terraces of the river's southern bank. (Figure 23). Forest cover consists of spruce, aspen, large cottonwood and occasional lodgepole pine with an open understorey of soapberry and immature alder. Terrain is steeply sloped down to the Morice River where it levels off into a generally marshy area broken occasionally by ridges and terraces. Seven shovel tests were excavated in Survey Area 3; all were archaeologically negative.

No archaeological resources and/or CMTs were identified within Survey Area 3.

Area 7 is located on the south shore of an unnamed lake just east of Lamprey Creek at an approximate elevation of 800 m ASL (Figure 24). The area within 50 m of the lake was considered to be of moderate archaeological potential. A low potential S4 creek runs through the survey area.

At 42 km along the Morice West Road, a logging road heads to the south. Area 7 is located adjacent to the road at approximately 2.5 km, and is oriented generally northeast/southwest. Transects were walked north to the unnamed lake shore, west towards Lamprey Creek and returned east to the access road (Figure 25). Forest cover consists of spruce, aspen and lodgepole pine with an understorey of soapberry and immature alder. The terrain is generally flat with occasional raised terraces and rocky knolls surrounded by marshes. The extent of marsh and wet terrain close to the unnamed lake allowed for sixteen shovel tests to be excavated along the north, west and south transects. No archaeological or cultural materials were identified from subsurface tests.

One recent CMT was identified and recorded approximately 70 m east of the lakeshore on a raised ridge. The CMT is a bark stripped lodgepole pine with one identifiable knife cut mark on the outer bark directly above the triangular-shaped scar (Plate 14). An increment bore sample revealed the age of modification to be approximately 81 years and thus the CMT was recorded as a traditional use feature rather than an archaeological site. CMT measurements and scar age are included in Table 16.

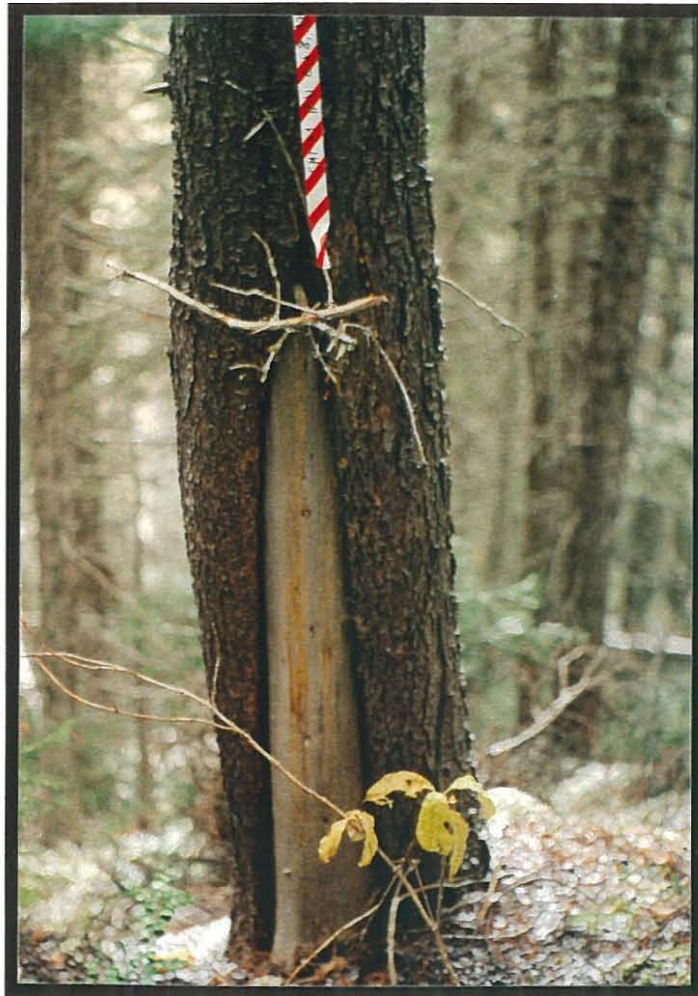
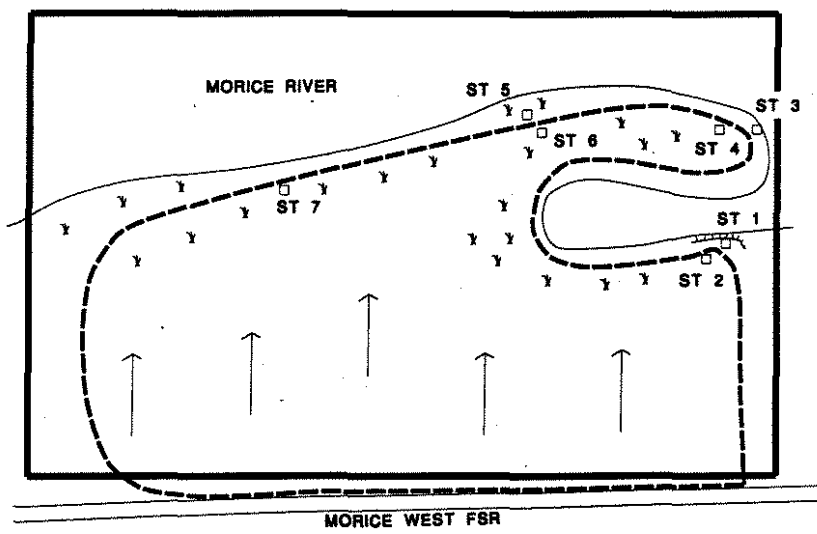








Plate 14: CMT 1 – Area 7.

Table 16: Area 7 CMTs

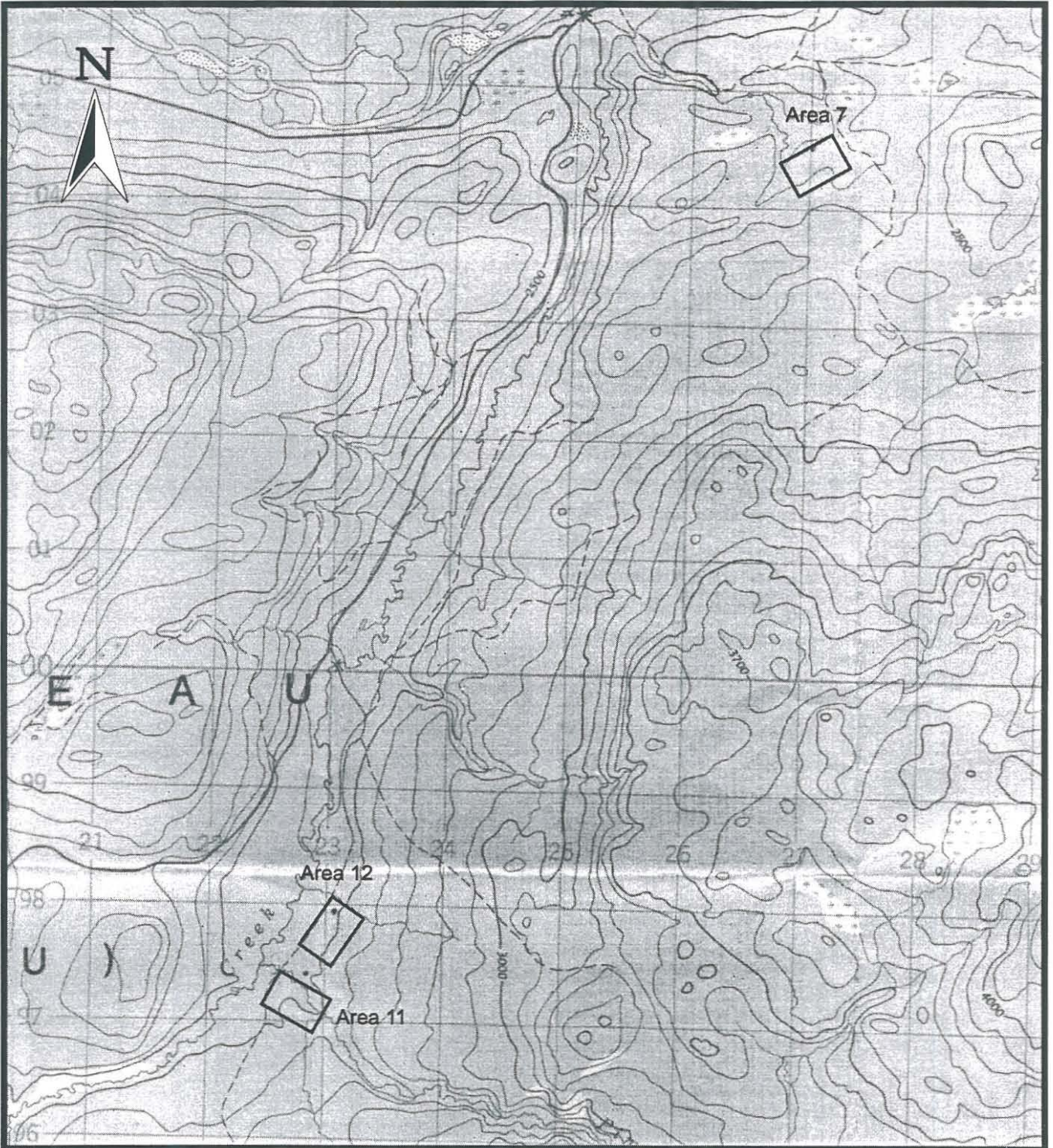
| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|--|----|----|----|------|------|--|-----|-----|-----|-----|-----|-------|-----|
| 1 | LP | BS | T | 1 | 37.6 | 30% | 120 | 19 | 7 | 0 | SW | Knife | 81 |
| <i>SP=species (LP=lodgepole pine)</i> <i>CL=class (BS=bark strip)</i> <i>TP=Type (R=rectangular; L=lenticular; T=triangular)</i> <i>FEAT=number of features/scars</i> <i>DBH=diameter of tree at breast height</i> <i>SLP=slope of terrain</i> <i>LEN=length of scar</i> | | | | | | <i>WID=width of scar</i> <i>DEP=depth of scar</i> <i>HAG=height above ground</i> <i>SDE=side of tree</i> <i>TMK=tool marks</i> <i>AGE=estimated scar age based on increment bore sample</i> <i>Note: all measurements are in centimeters</i> | | | | | | | |



Negative Shovel Test
Swamp 
Ridge or Terrace 
Points Down Slope 

Project Boundary 
Transect 
Road 

PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 3
FIGURE: 23
SCALE: 1:5,000



Survey Area

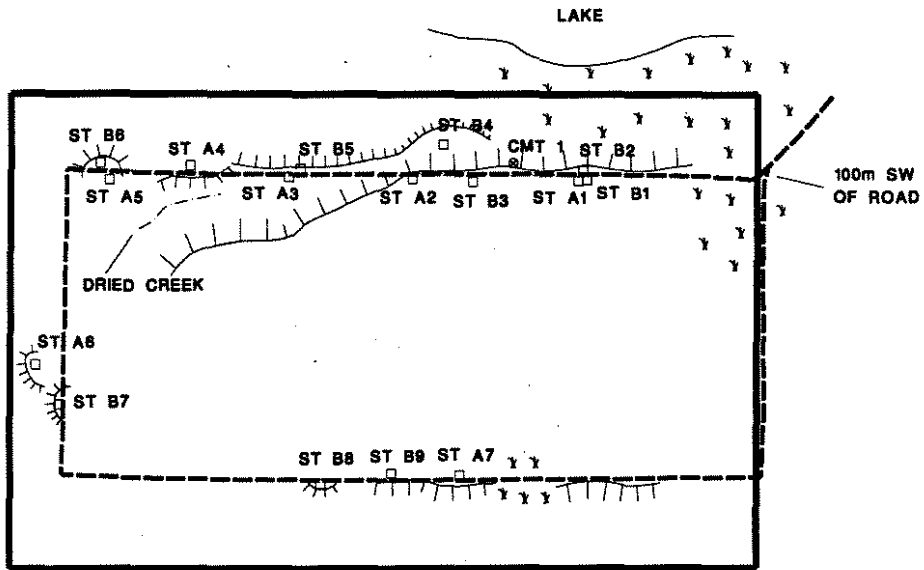


Project:
Title:

Morice AOA
Owen McBride Project Locations,
Survey Areas 7, 11, and 12

Figure:
Scale:

24
1:50,000 (093 L/3)



Negative Shovel Test □
Culturally Modified Tree ⊗
Swamp Y

Project Boundary ———
Transect - - - - -
Stream - - - - -
Ridge or Terrace - - - - -

PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 7
FIGURE: 25
SCALE: 1:5,000

Area II is located off Pimpernel Creek at an approximate elevation of 760 m ASL. Pimpernel Creek forms the northern boundary of the survey area, a low potential S4 creek runs along the south border and another S4 creek forks off Pimpernel to form the east boundary of the survey area (Figure 24). The area within 50 m of Pimpernel Creek was considered to have moderate archaeological potential while anything beyond 50 m was considered to be low in potential.

Transects were walked following steep sided terraces bordering the creeks to the north and east and were returned through the central portion of the survey area along a series of gullies (Figure 26). Forest cover consists of spruce, lodgepole pine, and, adjacent to the creeks, large cottonwoods. Understorey is generally open, consisting of immature spruce and pine, various berry species and a thick moss ground cover. Terrain is generally hummocky and rocky with steep sided terraces adjacent to the creeks. Thirteen shovel tests were excavated along transects and numerous tree throws were observed yet none revealed evidence of cultural materials.

Six bark stripped lodgepole pine CMTs were identified and recorded on a knoll near the confluence of Pimpernel Creek and the S4 creek. None of the CMTs evidence visible tool marks. The trees are located in what was considered to be an area of low archaeological potential, clustered approximately 150 m from Pimpernel Creek and 25 m at 300° northwest of the S4 creek. Increment bore dates place the dates of tree scarring between 60 and 75 years and thus the CMTs are not considered to be archaeological. CMT 1 (Plate 15), located approximately 150 m from the confluence of Pimpernel Creek and the S4 creek along the east/west transect, CMT 2, CMT 3 and CMT 5 are all single rectangular bark strips. CMT 4 and CMT 6 reveal lenticular-shaped bark strips, tapered at both top and bottom. CMT measurements are included as Table 17.



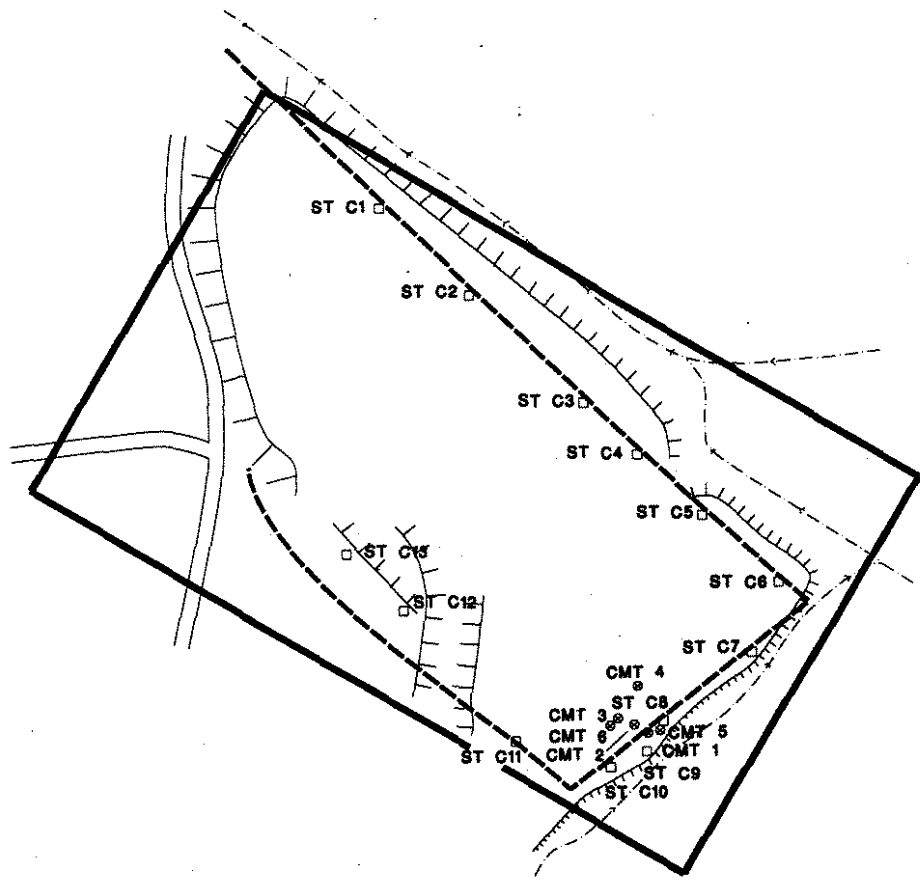
Plate 15: CMT 1 – Area 11.

Table 17: Area 11 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | R | 1 | 30.3 | Flat | 123 | 24 | 5 | 15 | W | - | - |
| 2 | LP | BS | R | 1 | 33.1 | Flat | 139 | 11 | 5 | 0 | N | - | - |
| 3 | LP | BS | R | 1 | 34.4 | Flat | 74 | 12 | 5 | 94 | NE | - | 75 |
| 4 | LP | BS | L | 1 | 35 | 25% | 94 | 9 | 5 | 42 | E | - | - |
| 5 | LP | BS | R | 1 | 34.7 | 30% | 104 | 10 | 5 | 25 | N | - | - |
| 6 | LP | BS | L | 1 | 43.9 | Flat | 67 | 7 | 13 | 40 | E | - | 60 |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar

WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters



| | | | | | |
|--------------------------|--|------------------|--|----------|---------------------------------|
| Negative Shovel Test | | Project Boundary | | PROJECT: | Morice AOA |
| Culturally Modified Tree | | Transect | | TITLE: | Owen McBride IRM Survey Area 11 |
| Ridge or Terrace | | Stream | | FIGURE: | 26 |
| | | Road | | SCALE: | 1:5,000 |

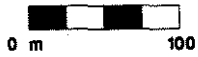
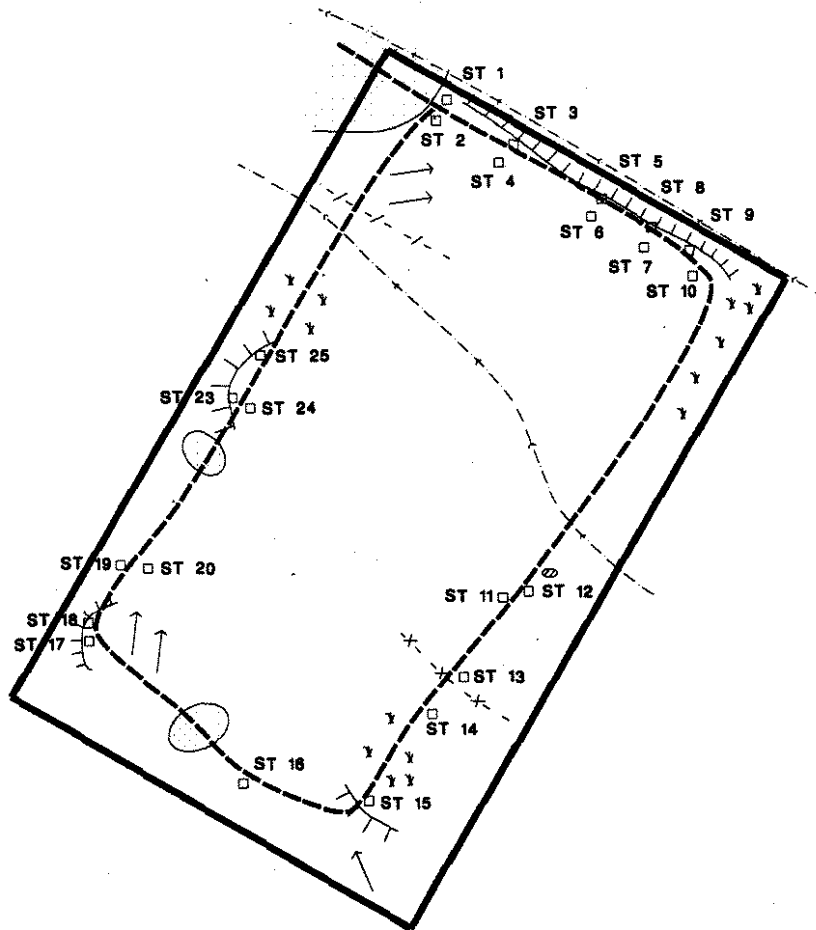
Area 12 is located 150 m back from Lamprey Creek just north of Area 11 and the confluence of Lamprey and Pimpernel creeks, approximately 760 m ASL (Figure 24). An unnamed, low potential S4 creek forms the northern border of the block. A small seasonal creek bisects the survey area from east to west.

Transects were walked southeast along a gently sloped ridge over the S4 creek and continued southwest across a series of seasonal drainages. Return transects were walked northwest and parallel to the Bill Nye Road along the western boundary of the survey area (Figure 27). Forest cover consists of lodgepole pine and spruce with an open understorey of immature pine and spruce. Terrain is moderately flat throughout most the area with some gradual sloping along the eastern border with steeper slopes and ridges adjacent to the creeks. Poorly drained marshy areas were identified surrounding the small raised ridges along the eastern and western boundaries. Two small pockets of forest had been previously cleared within Survey Area 12, both the result of beetle infestations. Twenty-five shovel tests were excavated along the transects and numerous tree throws were observed, yet no archaeological or cultural materials were identified.

An east-west running skid trail marked by sawn trees was identified near the southeastern boundary of the area. An east-west blazed trail was also identified immediately northeast of the small, seasonal creek that bisects the survey area. The trail and blazed trees, however, do not appear to continue further east or west adjacent to the small creek. No archaeological resources and/or CMTs were identified associated with the trail.

No archaeological resources were identified within Survey Area 12.

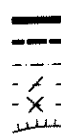
Area 15 is located off the boundary of logged Northwoods cut block 0207-002, northwest of Collins Lake (Figure 28). An unnamed creek forms the northwest border of the block. Area 15 is approximately 970 m ASL. The area within 50 m of the unnamed creek is a moderate archaeological potential zone.



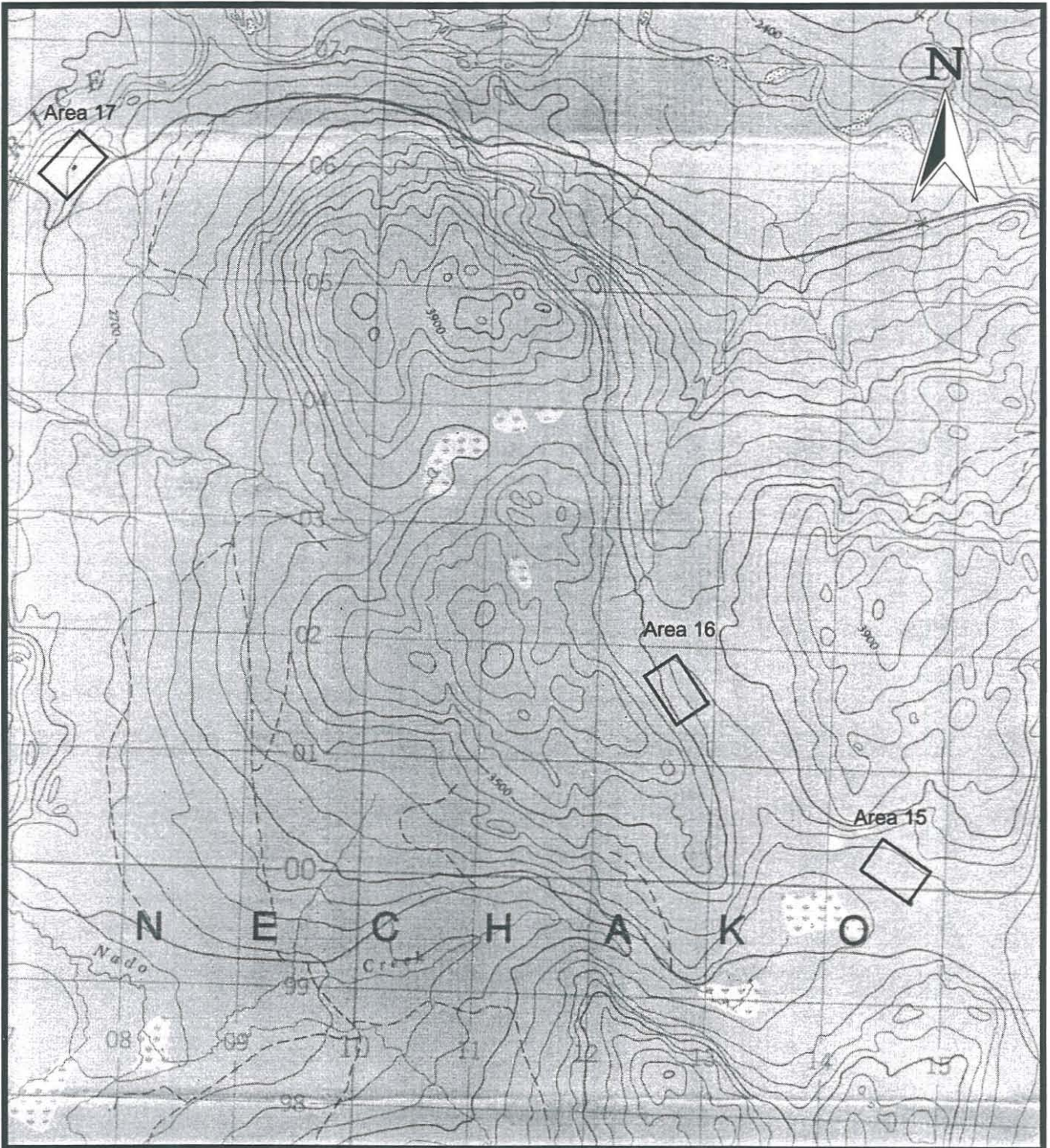
Negative Shovel Test
Swamp
Tree Throw
Deforested Area
Points Down Slope



Project Boundary
Transect
Stream
Blazed Trail
Skid Trail
Ridge or Terrace



PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 12
FIGURE: 27
SCALE: 1:5,000



Survey Area



Project:
Title:

Morice AOA
Owen-McBride Project Locations
Survey Areas 15, 16, and 17

Figure:
Scale:

28
1:50,000 (093 L/3)

The survey area is along the southwest boundary of harvested cut block 0207-002, immediately southeast of the unnamed S4 creek. Transects were walked from the cut block southwest along the S4 creek to a distinct ridge bordering a large marsh (Figure 29). Transects continued southeast to another marsh, east to a steep sided and rocky ridge and northeast paralleling the clear cut. Forest cover consists of spruce, sub-alpine fir and minimal lodgepole pine with an understorey of immature spruce and pine. Terrain is generally hummocky with areas of distinctive ridges and rocky outcrops surrounded by large poorly drained marshy areas. Fourteen shovel tests were excavated and numerous tree throws were observed.

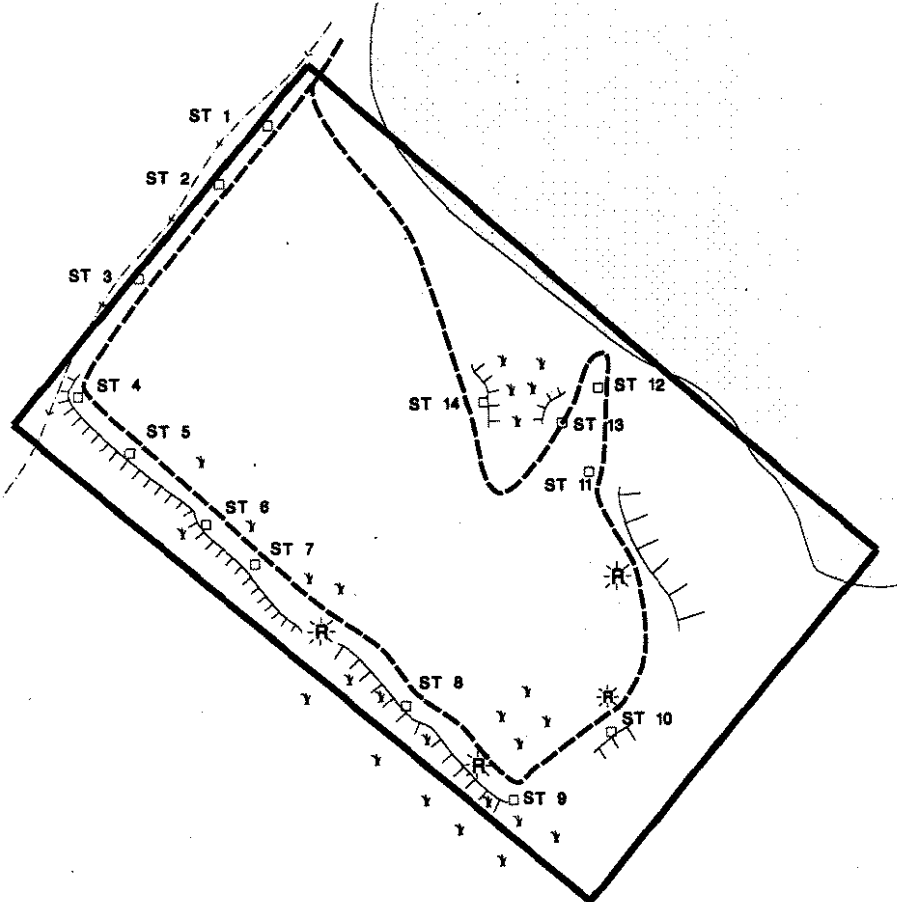
No archaeological resources and/or CMTs were identified within Survey Area 15.

Area 16 is located to the north of Area 15 in a high elevation area approximately 1000 m ASL (Figure 28). An unnamed S4 creek forms the western boundary of the survey area. The area within 50 m of the creek was considered to be of moderate archaeological potential.

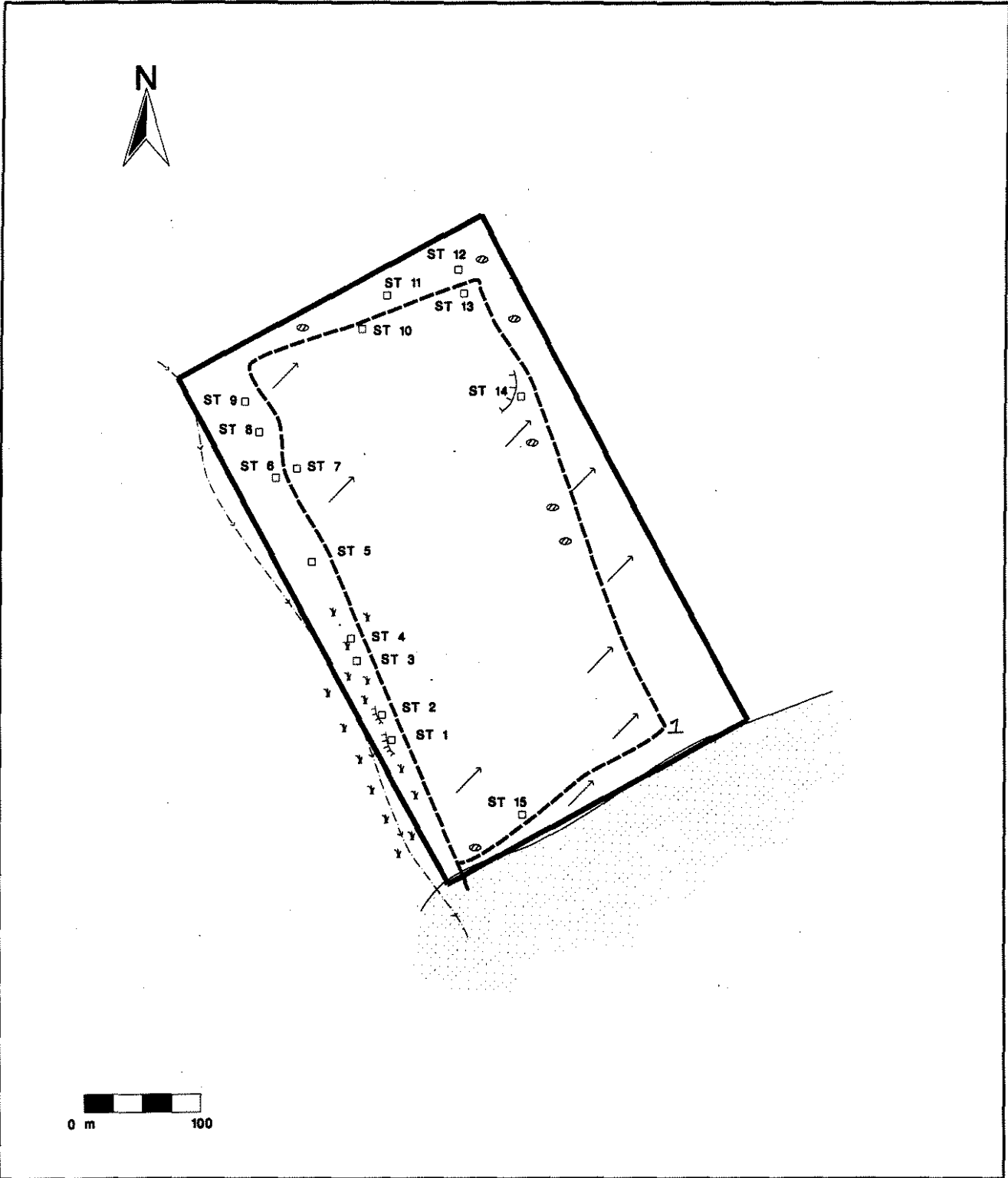
Survey Area 16 is off the northwest tip of harvested Northwoods cut block 0207-001. Transects were walked north along the eastern edge of the S4 creek for 500 m and then returned to 300 m east of the S4 creek (Figure 30). Forest cover consists of spruce and lodgepole pine with a relatively open understorey and groundcover of wild rosebush, moss and long grasses. Terrain slopes steeply up to the northeast. Parallel to the S4 creek, the terrain is relatively flat, poorly drained and marshy. Fifteen shovel tests were excavated and numerous tree throws were observed.






No archaeological resources and/or CMTs were identified within Survey Area 16.






Area 17 is located 100 m east of the Morice River at approximately 760 m ASL (Figure 28). A low potential creek adjacent to the Morice West FSR borders the block to the east. The area between 100 m and 200 m from the Morice River is of moderate archaeological potential.



| | | | | | |
|----------------------|--|------------------|--|----------|---------------------------------|
| Negative Shovel Test | | Project Boundary | | PROJECT: | Morice AOA |
| Swamp | | Transect | | TITLE: | Owen McBride IRM Survey Area 15 |
| Rocky Area | | Stream | | FIGURE: | 29 |
| Deforested Area | | Ridge or Terrace | | SCALE: | 1:5,000 |



Negative Shovel Test 
 Swamp 
 Tree Throw 
 Blowdown 
 Deforested Area 

Project Boundary 
 Transect 
 Stream 
 Ridge or Terrace 
 Points Down Slope 

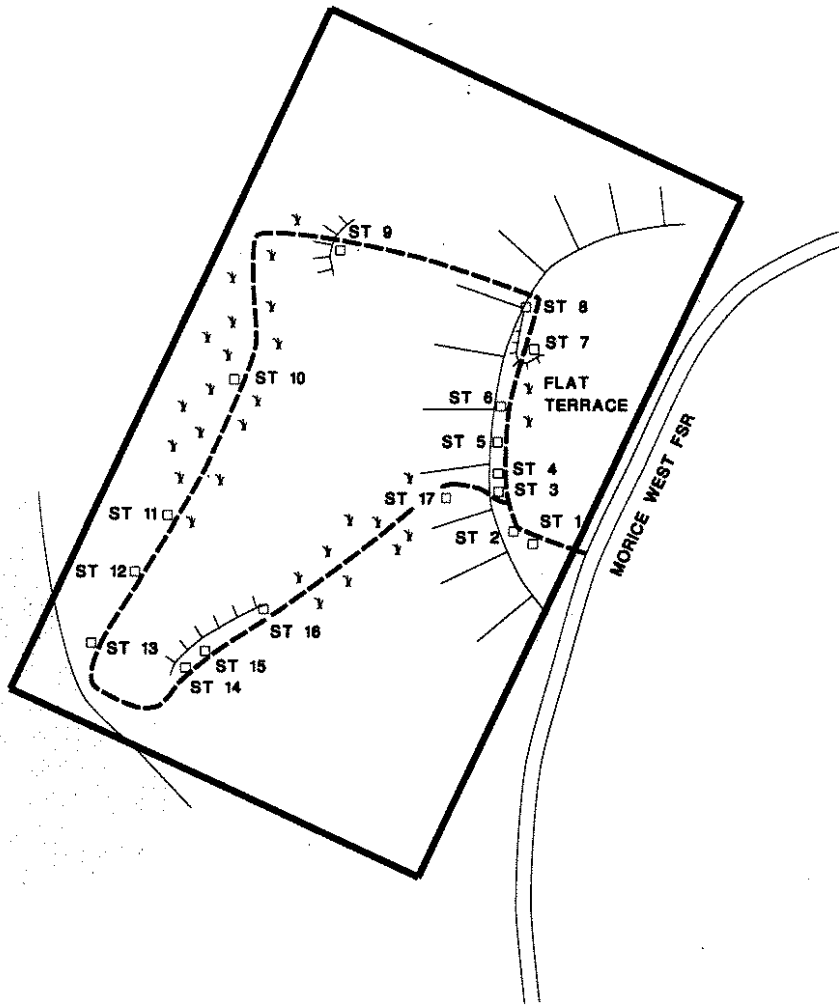
PROJECT: Morice AOA
 TITLE: Owen McBride IRM Survey Area 16
 FIGURE: 30
 SCALE: 1:5,000

Area 17 is located between the FSR and the south shore of the Morice River just before the road crosses the river north of Morice Lake. Transects were walked north along a large flat terrace, west to a marsh at the base of the terrace, south bordering the marsh to a cleared area adjacent to the Morice West FSR and returned to the east up to the raised terrace (Figure 31). The forest is relatively open consisting of spruce and lodgepole pine and a groundcover of mosses and long grass. Terrain is low lying, poorly drained and marshy to the west, bordered by steep terrain leading up to a large flat terrace in the northeast part of the survey area. Seventeen shovel tests were excavated and numerous tree throws were observed.

No archaeological resources and/or CMTs were identified within Survey Area 17.

Area 19 is located back from and to the east of the north tip of Morice Lake along an unnamed, low potential creek (Figure 32). The area within 150 m of the lake is a high archaeological potential zone, while between 150 m and 250 m is considered to be of moderate potential. The block elevation is approximately 800 m ASL. Survey Area 19 is located off the western boundary of Northwoods cut block 0202-004, immediately east of the Morice River/Morice Lake confluence.

Transects were walked south along the cut block boundary to the unnamed creek, west parallel to the creek, and returned north and east to the cut block boundary (Figure 33). The forest is relatively open, consisting of spruce and lodgepole pine with a groundcover of wild rose bush, mosses and grass. Terrain is generally flat with steep sections and ridges along the western boundary. Although the unnamed S4 creek was dry, marshy areas were identified adjacent to the cut block, surrounded in sections by ridges and rocky outcroppings. Twenty-nine shovel tests were excavated and numerous tree throws were observed. No archaeological resources and/or CMTs were identified within Survey Area 19.



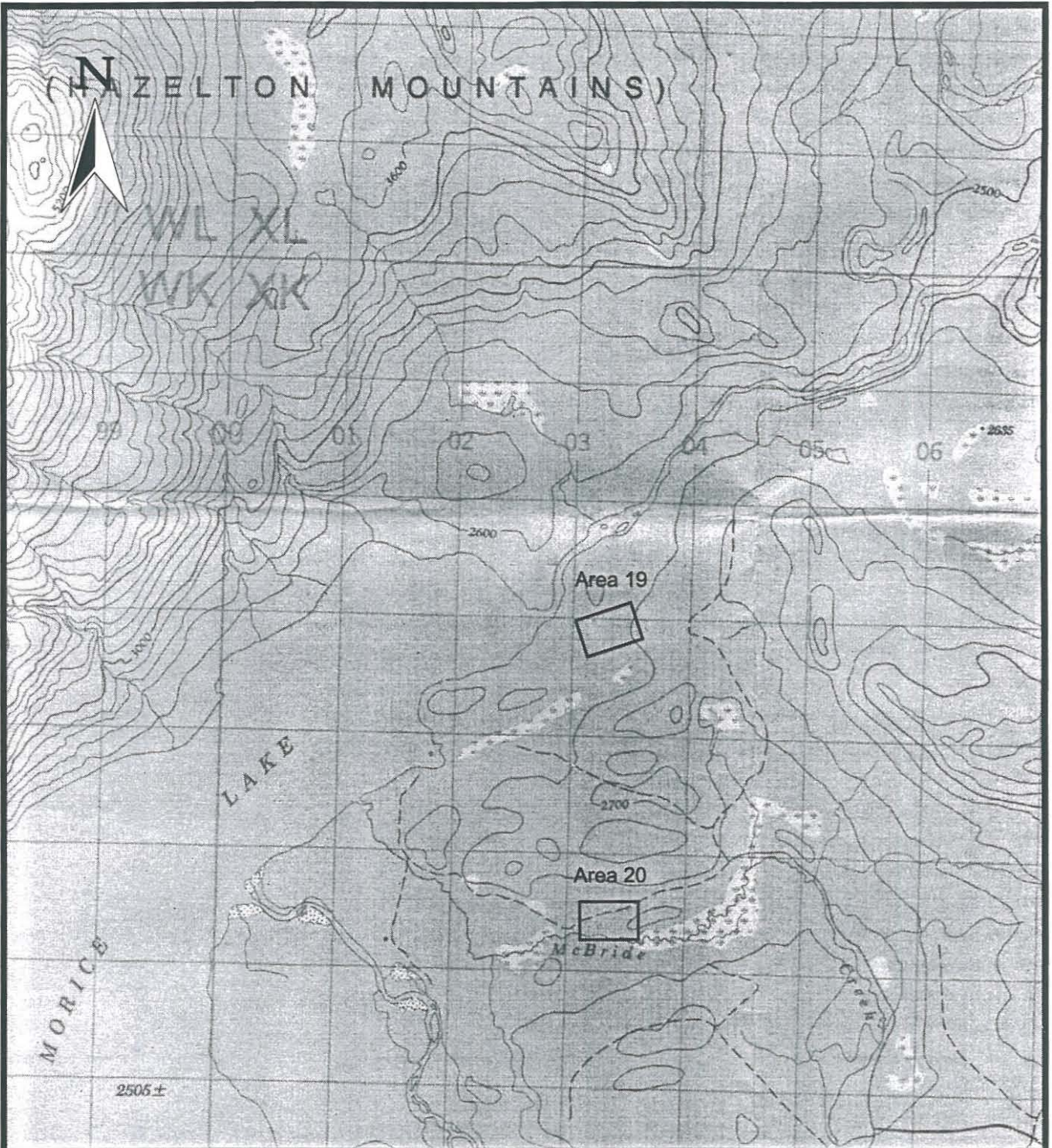
Negative Shovel Test
Swamp
Deforested Area



Project Boundary
Transect
Road
Ridge or Terrace



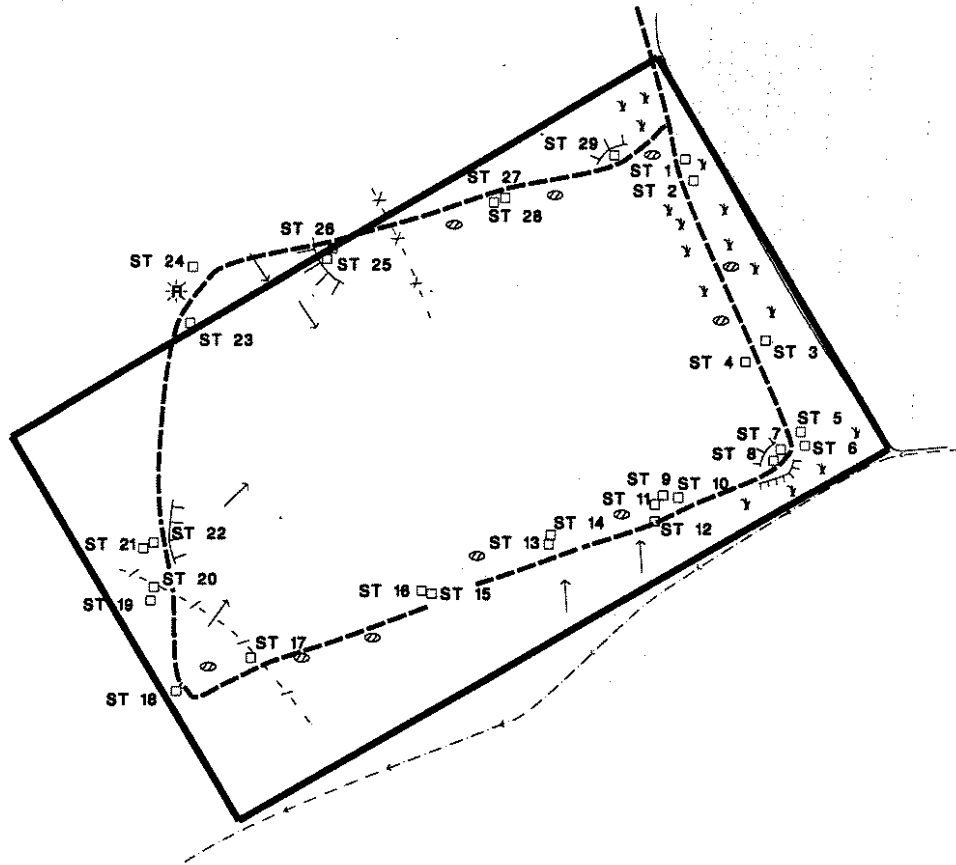
PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 17
FIGURE: 31
SCALE: 1:5,000














Survey Area



Project: Morice AOA
 Title: Owen-McBride Project Locations
 Survey Areas 19 and 20
 Figure: 32
 Scale: 1:50,000 (093 L/3)



Negative Shovel Test 
 Swamp
 Tree Throw 
 Rocky Area 
 Deforested Area 
 Points Down Slope 

Project Boundary 
 Transect 
 Stream 
 Blazed Trail 
 Skid Trail 
 Ridge or Terrace 

PROJECT: Morice AOA
 TITLE: Owen McBride IRM Survey Area 19
 FIGURE: 33
 SCALE: 1:5,000

A northeast-southwest skid trail marked with sawn trees was identified along the eastern transect of Survey Area 19. Two north-south blazed trail segments were also identified, both parallel to and at the bottom of a well defined ridge near Morice Lake in the western portion of the survey area. No CMTs were found in association with the blazed trails.

Area 20 is located along McBride Creek to the east of Morice Lake at approximately 780 m ASL (Figure 32). The area within 50 m of McBride Creek was considered to have moderate archaeological potential.

Transects were walked parallel to the north bank of McBride Creek to the confluence of McBride Creek and a smaller seasonal S4 creek and were returned in full (Figure 34). Forest cover consists of spruce and lodgepole pine with a relatively open understorey and a groundcover of wild rose bush, moss and grass. Terrain is typically flat with small ridges adjacent to McBride Creek. Marshes were identified along the east and western edge of the survey area. Twenty-three shovel tests were excavated and numerous tree throws were observed.

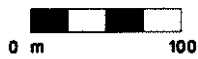
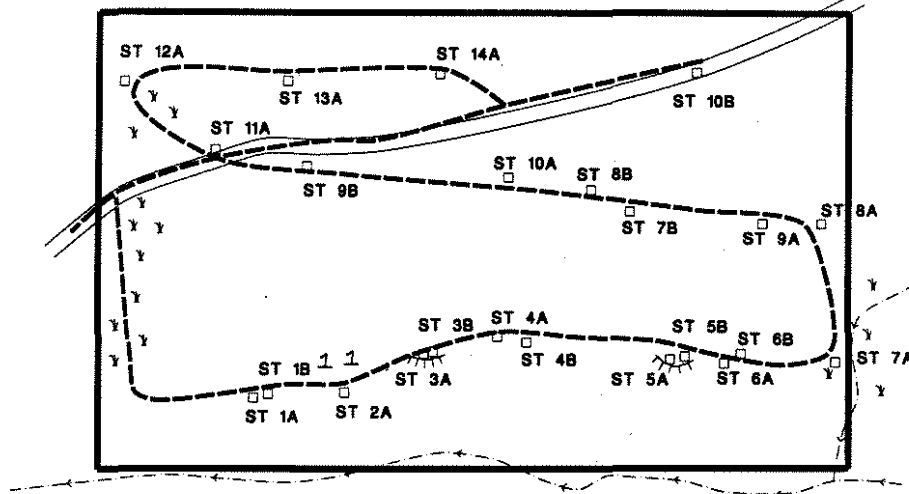
No archaeological resources and/or CMTs were identified within Survey Area 20.





Area 25 is located on an unnamed lake with a southern exposure approximately 150 m from Lamprey Lake (Figure 35). The area is within 50 m of the unnamed lake and between 150 m and 250 m from Lamprey Lake were considered moderate potential zones. A moderate potential S4 creek extends through the middle of the block. The approximate block elevation is 1000 m ASL.





Survey Area 25 is located south of a hunting camp on Lamprey Lake bordered by the Morice Lamprey FSR to the west. Transects were walked east of the FSR to the edge of, parallel to and on both sides of the unnamed S4 creek (Figure 36). Forest cover consists of spruce, lodgepole pine and alder with an understorey of immature spruce and pine and



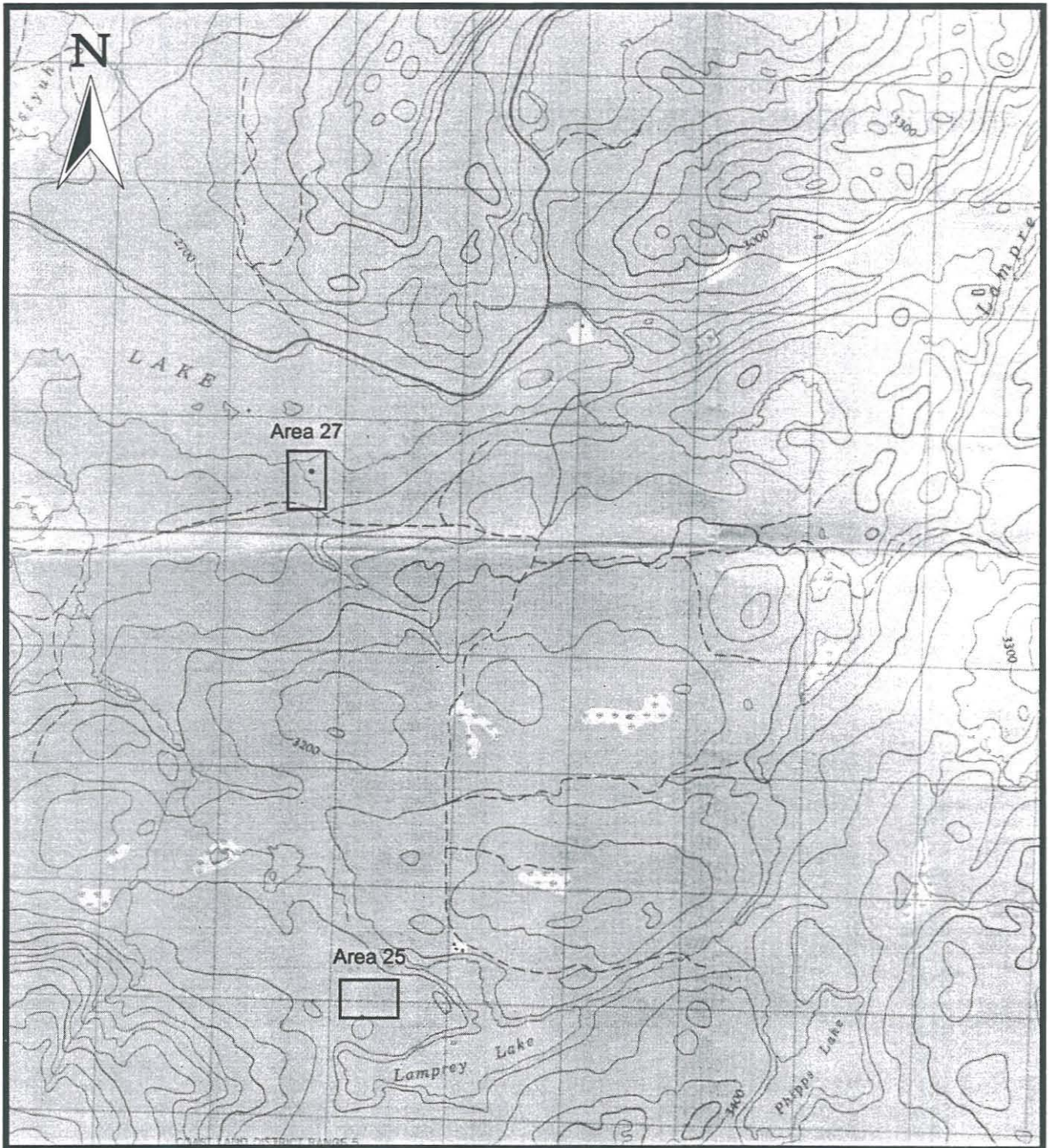
HO 18 ROAD



Negative Shovel Test 
Swamp 
Blowdown 
Ridge or Terrace 

Project Boundary 
Transect 
Stream 
Road 

PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 20
FIGURE: 34
SCALE: 1:5,000



Survey Area

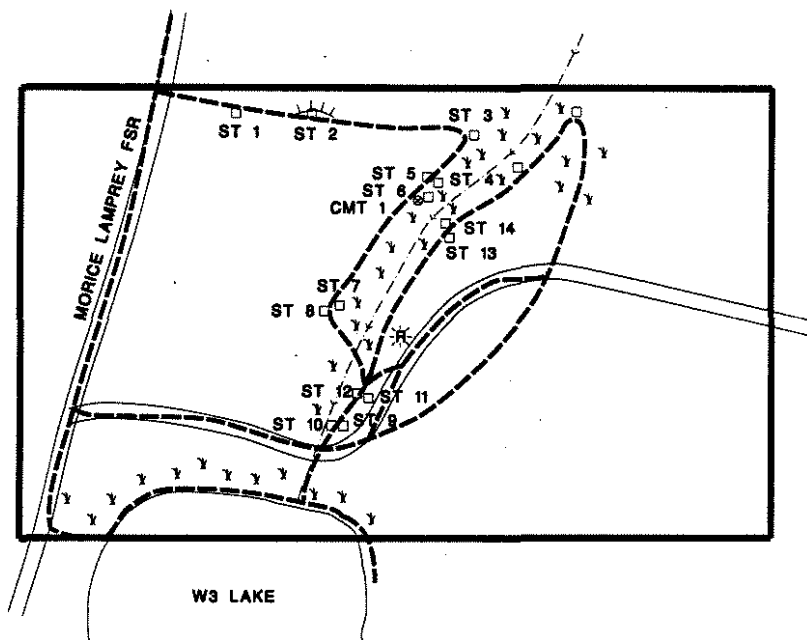






Project:
Title:






Morice AOA
Pwen-McBride Project Locations
Survey Areas 25 and 27

Figure:
Scale:

35
1:50,000 (093 L/3)



Negative Shovel Test 
 Culturally Modified Tree 
 Swamp 
 Rocky Area 

Project Boundary 
 Transect 
 Stream 
 Road 
 Ridge or Terrace 

PROJECT: Morice AOA
 TITLE: Owen McBride IRM Survey Area 25
 FIGURE: 36
 SCALE: 1:5,000

a groundcover consisting of soapberry, cranberry, huckleberry, Labrador tea and long grasses. Terrain is generally flat with areas of exposed rock. Terrain adjacent to the creek and lake is poorly drained and marshy. Sixteen shovel tests were excavated in Survey Area 25. No archaeological resources were identified from subsurface tests.

One rectangular bark stripped lodgepole pine CMT was identified and recorded in Survey Area 25. Located approximately 180 m east of the Morice Lamprey FSR, the CMT is 10 m west of an unnamed creek confluence with the lake. Axe cut marks were identified on the scar face. An increment bore sample dated the modification to only 45 years ago and thus the CMT is not considered archaeological. CMT measurements are included in Table 18.

Table 18: Area 25 CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|--|----|----|----|------|------|------|--|-----|-----|-----|-----|-----|-----|
| 1 | LP | BS | R | 1 | 39.2 | Flat | 110 | 15 | 3 | 0 | N | Axe | 45 |
| <i>SP=species (LP=lodgepole pine)</i> <i>CL=class (BS=bark strip)</i> <i>TP=Type (R=rectangular; L=lenticular; T=triangular)</i> <i>FEAT=number of features/scars</i> <i>DBH=diameter of tree at breast height</i> <i>SLP=slope of terrain</i> <i>LEN=length of scar</i> | | | | | | | <i>WID=width of scar</i> <i>DEP=depth of scar</i> <i>HAG=height above ground</i> <i>SDE=side of tree</i> <i>TMK=tool marks</i> <i>AGE=estimated scar age based on increment bore sample</i> <i>Note: all measurements are in centimeters</i> | | | | | | |

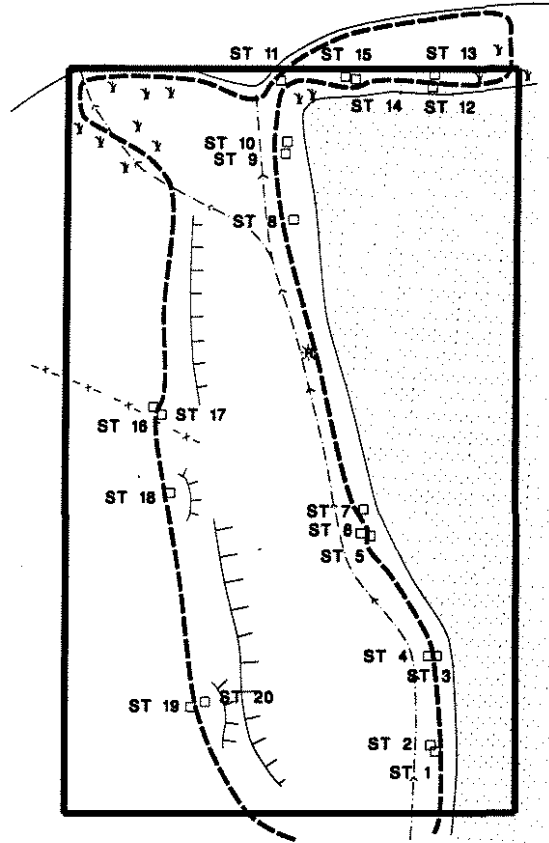
Area 27 is located at about 800 m ASL within a high archaeological potential zone off the southern shore of McBride Lake (Figure 35). A moderate potential unnamed creek runs through the middle of the block.

Transects were walked north along the east side of the unnamed creek to McBride Lake. Transects paralleled the lakeshore and were returned in full to the south (Figure 37). A large harvested area is located east of the creek covering nearly half of the survey area. Forest cover elsewhere consists of spruce, lodgepole pine and alder with an understory consisting primarily of immature trees, soapberry and wild rose. Terrain is moderately sloped down to McBride Lake with a distinct ridge west of and parallel to the unnamed creek. Twenty shovel tests were excavated and numerous tree throws were observed.

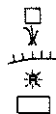
No archaeological resources and/or CMTs were identified within Survey Area 27.



McBRIDE LAKE



Negative Shovel Test
Swamp
Ridge or Terrace
Rocky Area
Deforested Area



Project Boundary
Transect
Stream
Road
Skid Trail



PROJECT: Morice AOA
TITLE: Owen McBride IRM Survey Area 27
FIGURE: 37
SCALE: 1:5,000

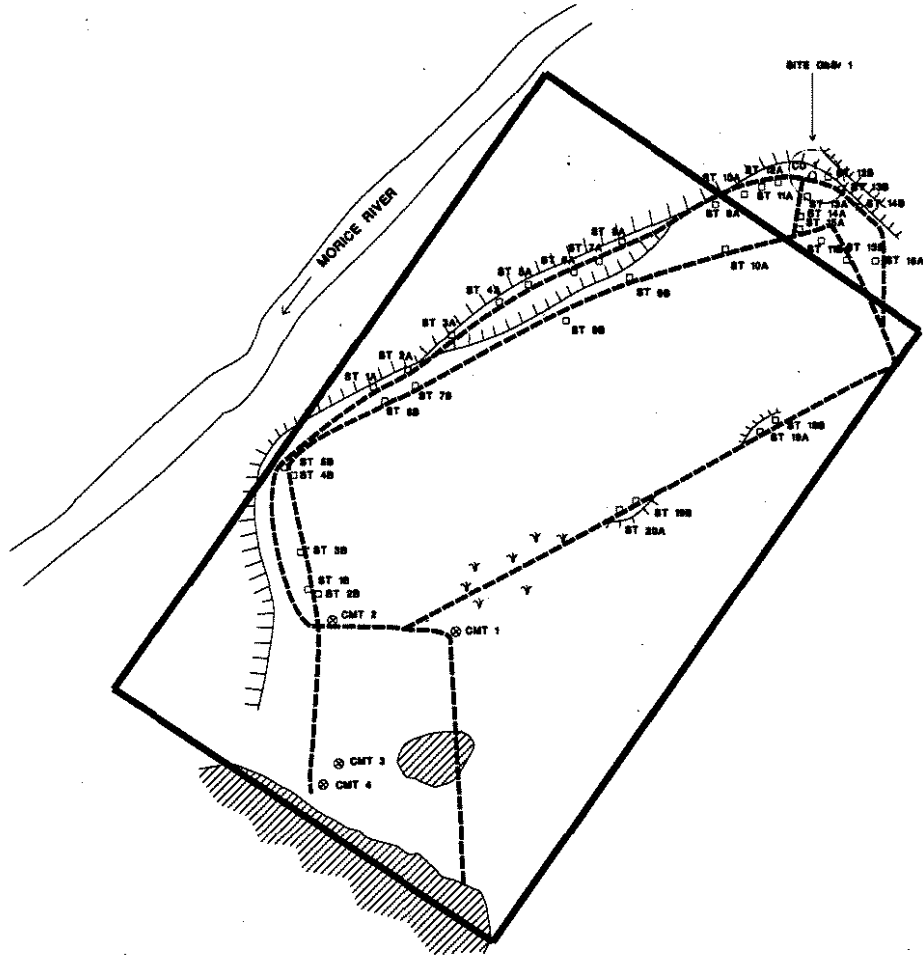
Area 29 is located just south and east of the Morice River, west of Owen Creek at an elevation of approximately 680 m (Figure 21). The area within 100 m of the Morice River was considered high potential, while the area between 100 m and 200 m was considered to be moderate in potential.

The forest is generally open, consisting of spruce and lodgepole pine trees with an understorey of immature spruce and pine and a ground cover of mosses and long grass. Terrain is primarily flat. However, a steep sided ridge and terrace was noted running east and parallel to the Morice River. Thirty-nine shovel tests were excavated along transects that followed the ridged terrace and were returned in full (Figure 38). No archaeological or cultural materials were identified in subsurface tests. However, one cultural depression and four CMTs were identified and recorded.

The cultural depression is likely a cache pit (Plate 16). CD 1 is located 500 m at 45° from the edge of the recreation/camping area along the steeply sided ridged terrace 150 m southeast of and approximately 50 m above the Morice River. The circular depression measures 60 cm x 60 cm with a 14.5 cm wide rim and a depth of 57 cm. The cache pit was recorded as archaeological site **GbSr 1** (Figure 39).



Plate 16: Cache Pit 1 – Area 29.



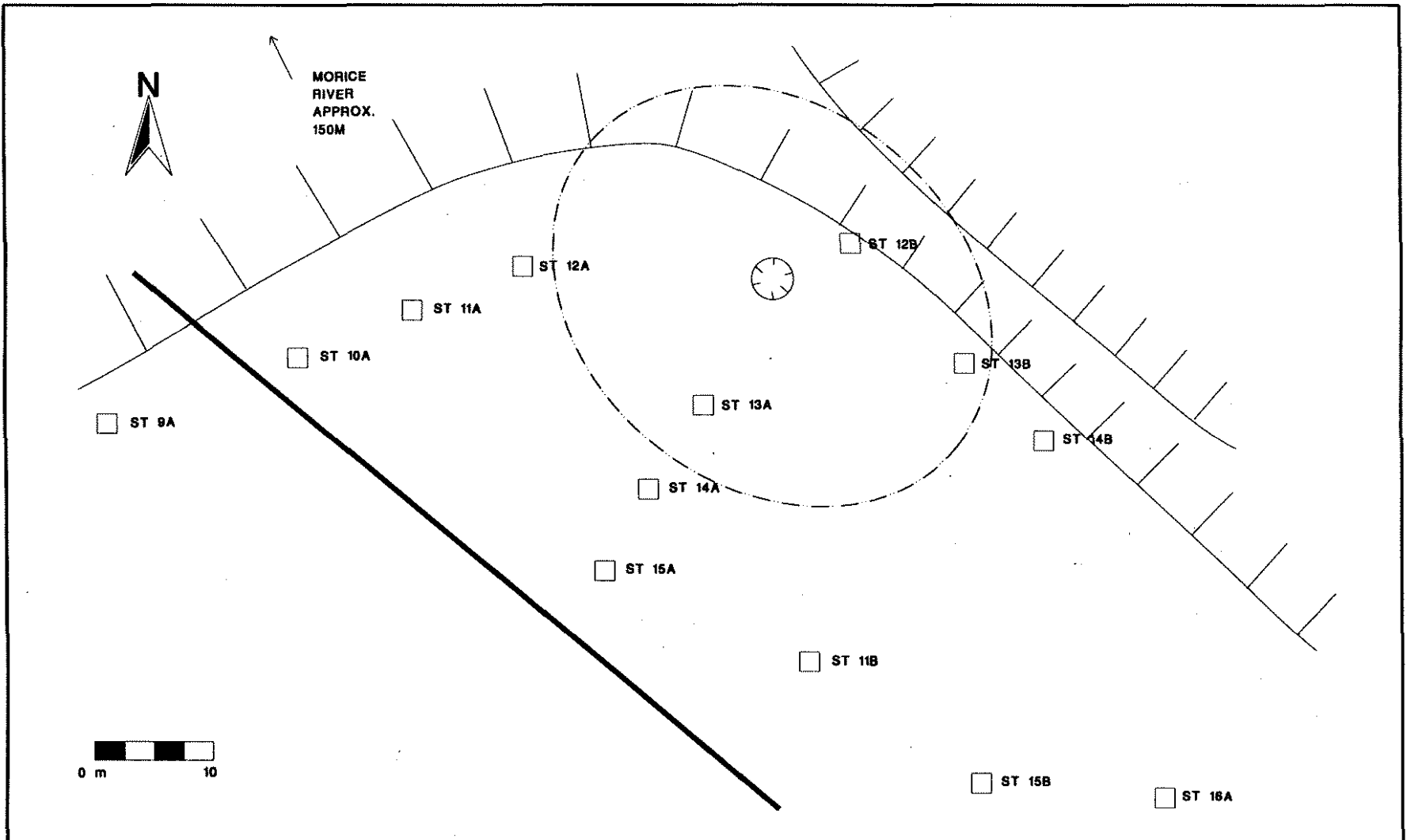
Negative Shovel Test
 Culturally Modified Tree
 Cultural Depression
 Site Boundary



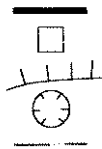
Project Boundary
 Transect
 Swamp
 Modern Camp Area



PROJECT: Morice AOA
 TITLE: Owen McBride Survey Area 29 and Site GbSr 1
 FIGURE: 38
 SCALE: 1:5,000



Project Boundary
Negative Shovel Test
Landform
Cache Pit
Site Boundary



PROJECT: Morice AOA
TITLE: GbSr 1, Survey Area 29, Owen McBride IRM
FIGURE: 39
SCALE: 1:500

Four bark stripped lodgepole pine CMTs were identified and recorded within close proximity to the recent camp site and recreation site. Three of the CMTs evidenced tool marks associated with modification. Both CMT 1 and 2 evidence axe chop marks (Plate 17). No tool marks were visible on CMT 3. CMT 4 evidences sharp knife cut marks (Plate 18). Increment bore dates placed the dates of tree scarring between 24 and 93 years. The CMTs are therefore not considered to be archaeological. They are, however, included on the site form for GbSr 1, based on their close proximity to the cache pit. CMT measurements are included as Table 19.



Plate 17: CMT 1 – Area 29.

Table 19: Area 29 (GbSr 1) CMTs

| CMT | SP | CL | TP | FEAT | DBH | SLP | LEN | WID | DEP | HAG | SDE | TMK | AGE |
|-----|----|----|----|------|------|------|-----|-----|-----|-----|-----|-------|-----|
| 1 | LP | BS | R | 1 | 16.9 | 10% | 225 | 14 | 5 | 0 | S | Axe | 24 |
| 2 | LP | BS | R | 1 | 36.3 | flat | 36 | 6 | 6 | 51 | E | Axe | 64 |
| 3 | LP | BS | R | 1 | 43.6 | flat | 51 | 6 | 3 | 74 | S | No | 93 |
| 4 | LP | BS | R | 1 | 38.2 | flat | 141 | 16 | 8 | 15 | N | Knife | 36 |

SP=species (LP=lodgepole pine)
CL=class (BS=bark strip)
TP=Type (R=rectangular; L=lenticular; T=triangular)
FEAT=number of features/scars
DBH=diameter of tree at breast height
SLP=slope of terrain
LEN=length of scar
WID=width of scar
DEP=depth of scar
HAG=height above ground
SDE=side of tree
TMK=tool marks
AGE=estimated scar age based on increment bore sample
Note: all measurements are in centimeters

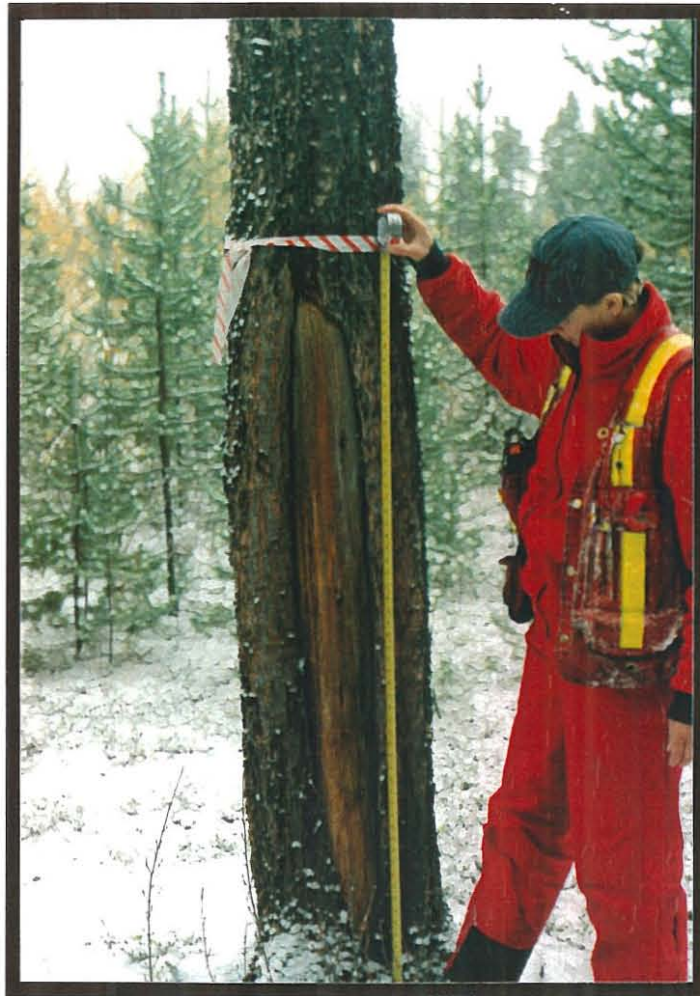


Plate 18: CMT 4 – Area 29.

5.5 AIS Results Analysis

Three hundred twenty-nine CMTs, three cultural depressions and an historic trapper's cabin and associated structures were recorded during the Tochcha inventory study in Old Fort territory. Archaeological sites GgSm 1, 2 and 3 were recorded. Sites, either identified as archaeological or as post-1846 culturally modified trees were recorded in eleven of the fourteen survey areas. In addition to the sites, seven trails or portions were recorded during the AIS (Table 16).

Table 20: Tochcha Inventory – Sites

| Surv Area | Site Number | Site Type | Trail Present | Arch. Pot. Zone | Prox. to water | Elev. | Forest Cover | Topo. Features | Aspect |
|-----------|-------------|-----------|---------------|-----------------|----------------------------|--------|-----------------------------------|--------------------|-------------------------------------|
| 2 | GgSm 1 | SF, CMT | Yes | High | 35 m (SF) 10-50 m (CMT) | 700 m | SAI 141-250; PIAI 81-100 | - | Southern & Western |
| 3 | - | CMT | Yes | Moderate | 10 m | 850 m | SB(PI) 141-250 | Terrace | Southern |
| 7 | GgSm 2 | CMT | Yes | Moderate-Low | 2 – 70 m | 850 m | S(B) 141-250 | Terrace | Western (lake); Southern (creek) |
| 8 | - | CMT | No | Moderate | 5 – 50 m | 850 m | SB(PI) 141-280 | Terrace | Northern (lake); Eastern (creek) |
| 14 | - | CMT | Yes | Moderate | 1 – 25 m | 850 m | SB(PI) 121-250 | - | Western |
| 16 | - | CMT | Yes | Low | 100 m | 800 m | S(BPI) 141-250 | Terrace | Western |
| 18 | - | CMT | No | Moderate | 20 m | 800 m | SPI(B) 141-250 | - | Western |
| 24 | - | CMT | No | Moderate-Low | 50 – 100 m | 900 m | PIS(B) 141-250 | Knoll | Eastern |
| 25 | - | CMT | No | Moderate | 10 m | 850 m | S(Sb) 121-140 | Terrace | Northern (lake); Western (creek) |
| 26 | - | CMT | No | Low | 200 m | 1100 m | BS(PI) 141-250 | Terrace / Gully | - |
| 28 | GgSm 3 | SF, CMT | Yes | Moderate-Low | 15 – 150 m | 900 m | SB(PI) 141-250 | Terrace | Southern |

*Forest Cover: Major tree types listed first; minor tree types listed in brackets.
Codes: S=spruce, At=aspen, PI=lodgepole pine, B=balsam (subalpine fir), Sb=black spruce.
Stand age listed below tree type.*

Twelve CMTs and one cultural depression were recorded during the Owen-McBride inventory study. Archaeological site GbSr 1 was recorded. Sites, either identified as archaeological or as post-1846 culturally modified trees were recorded in four of the thirteen survey areas. Blazed trails were identified in two survey areas in the Owen-McBride IRM Unit (Table 17).

Table 21: Owen-McBride Inventory - Sites

| Surv Area | Site Number | Site Type | Trail Present | Arch. Pot. Zone | Prox. to water | Elev. | Forest Cover | Topo. Features | Aspect |
|-----------|-------------|----------------|---------------|-----------------|--|--------|-------------------|----------------|--|
| 7 | - | CMT | No | Low | 70 m | 790 m | PIS 121-140 | Terrace | Northern |
| 11 | - | CMT | No | Low | 25 m (S4 creek); 150 m (S2 creek) | 760 m | PI(SB) 121-140 | Terrace | Eastern (S4 creek); Northern (S2 Creek) |
| 12 | - | Trail (blazed) | Yes | Low | 100 m (S4 creek); 20 m (seasonal creek) | 760 m | SPI 121-140 | - | Northern (S4 creek); southerly (seasonal creek) |
| 19 | - | Trail (blazed) | Yes | Low | >50 m (S4 creek) | 760 m | PIB 141-250 | - | - |
| 25 | - | CMT | No | Moderate | 15 m (creek); 220 m (lake) | 1000 m | BPIS 141-250 | - | Eastern (creek); Southern (lake) |

*Forest Cover: Major tree types listed first; minor tree types listed in brackets.
Codes: S=spruce, At=aspen, PI=lodgepole pine, B=balsam (subalpine fir), Sb=black spruce.
Stand age listed below tree type.*

Of the eleven site areas recorded in the Tochcha IRM Unit, one or 9.1% falls within a high potential area, five or 45.5% are in moderate potential areas, three or 27.3% are in both moderate and low potential areas, and two or 18.2% are in low potential areas. All site areas contained culturally modified trees as either primary or secondary components. Of the three archaeological sites, one is considered to be in a high potential area and the remaining two span moderate and low potential areas. CMTs are present in five moderate potential areas, in three moderate-low potential areas and low archaeological potential areas. It is clear from the data that CMTs occur in the moderate and more in designated low potential areas. All sampled CMTs with the exception of CMT 23 in Survey Area 7 (GgSm 2), clearly post-date 1846.

In six of the eleven Tochcha site areas, or 54.5%, trails were identified associated with the CMTs. Based on the data accumulated during the Tochcha AIS, the identification of a trail may be used to predict the presence of culturally modified trees.

Results were statistically similar for the Owen-McBride study area. Four CMT sites, all post-dating 1846, were recorded, two in moderate potential areas and two in low potential areas. GbSr 1 was recorded in a moderate potential area. Trails were identified in two low potential areas in the Owen-McBride IRM Unit. However, no CMTs were recorded in association with either of the two trails.

Forest cover of areas with identified sites included spruce/aspens, pine/aspens and spruce/balsam/pine, in varying orders of major and minor species. All identified CMTs in the Tochcha and Owen-McBride IRM study areas were lodgepole pine regardless of described forest cover. For example, Tochcha Area 7, in which 26 pine CMTs were recorded, is listed as spruce/balsam forest cover. Although spruce and balsam (subalpine fir) clearly dominated the forest, isolated lodgepole pines were present. A high percentage of these pines were culturally modified. Thus, the use of forest cover as a variable in the prediction of archaeological or CMT potential seems problematic at best in this region.

The aspect of recorded archaeological sites and/or CMT sites for both IRM Units varies significantly. Based on 1997 field data, it appears that the use of aspect as a variable in the prediction of sites is not important. However, correlations between aspect and archaeological site presence have been suggested in archaeological overviews and studies conducted in other areas of British Columbia. Based on the limited number of archaeological sites previously recorded in the Morice Forest District and the "clustering" of sites recorded around the major lakes, primarily Babine, Morice and McBride lakes, the use of aspect as a predictive variable here would seem premature. The AIS, however, focused on areas primarily away from major lakes and rivers, and thus aspect would seem to have less, if any, importance as a site prediction variable.

Like aspect, the elevation of archaeological or CMT sites recorded during the Tochcha and Owen-McBride AIS studies varies significantly. This varying elevation, however, is of interest. Previously recorded archaeological sites occur almost exclusively in the low elevations, under 800 m ASL. The only exceptions were CMT sites, which, despite a

small data base, occur at a variety of elevations, up to 1000 m ASL. Results from the two components of the AIS study are consistent with this trend, although clearly more data are required.

The correlation between archaeological and post-1846 CMT sites and terraces is of interest. In the Tochcha study area, seven of the eleven sites recorded are associated with defined terraces. However, most of these small scale microenvironmental features are impossible to predict; terraces, small knolls and gullies are not generally shown on maps, even at the 1:20,000 scale. They likely do appear on smaller scale maps, such as the 1:10,000 or 1:5,000 cruise maps used for forestry purposes. If identifiable and if in proximity and/or correlation with other variables such as water bodies, topographical features are useful in the prediction of archaeological or CMT site presence.

6. AOA Model Refinement and Recommendations

Based on the analysis of information from previously recorded site locations and surveys, First Nation consultation with Old Fort community members, and the results of the Tochcha and Owen-McBride archaeological inventory studies, the model of archaeological potential for the Morice Forest District is as follows:

High Archaeological Potential: Areas within 150 m of a named lake and/or within 100 m of a named river (less than 40% slope).

Moderate Archaeological Potential: Areas between 150 m and 250 m of a named lake, between 100 m and 200 m of a named river, and/or within 50 m of an unnamed lake or perennial creek (less than 40% slope).

Low Archaeological Potential: Any area that does not fall into any of the above high or moderate potential areas.

High archaeological potential areas demonstrate high site density and site complexity. All site types known in the region can occur in high potential areas. The most complex site types such as multi-component habitation sites occur most frequently in high potential areas.

Moderate archaeological potential areas are characterized by lower site density and less complex site types.

Low potential evidence only occasional archaeological sites. Low potential also includes areas of generally "unknown" potential where little to no survey has been conducted and thus the data are scarce. Although sites may be unlikely to occur, low potential does not mean the absence of archaeological sites or resources. If present, sites are anticipated to be isolated and task specific and generally unpredictable in terms of location.

Perennial creek is defined as any solid lined creek shown on T.R.I.M. data. Generally, this includes all S2 and S3 creeks. Intermittent creeks, defined on T.R.I.M. with dashed lines, are not included. Intermittent creeks are generally classed S4-S6.

This model is based solely on archaeological resource potential. Archaeological sites or resources are protected by the *Heritage Conservation Act* which protects Provincial heritage sites, burial places with historical or archaeological value, aboriginal rock paintings or carvings, and sites with evidence of human habitation or use before 1846. However, the majority of the sites recorded during the AIS cannot be considered "archaeological" by nature but are largely post-1846 culturally modified trees. Although not archaeological, these CMTs represent traditional use features to local First Nations peoples. Without archaeological testing, tree scar evaluation and increment boring, it is impossible to accurately evaluate and date a CMT. Since CMTs are frequently identified in clusters and since 1846 is an arbitrary date, it is possible that pre-1846 CMTs can be found in association with post-1846 CMTs. Post-1846 CMTs, as in Tochcha Survey Area 28, can also be found in association with archaeological features.

A high percentage of the CMTs recorded during the present AIS program are situated in areas of low archaeological potential. Thus, it is suggested that a fourth potential zone based on potential CMT locations is suggested by the data. CMTs in five Tochcha areas and in two Owen-McBride areas are located wholly or partially within low potential areas. An area of 150 m around any body of water addressed in the archaeological potential model encompasses the CMTs in all but one known case. Thus, the suggested fourth potential zone based on potential CMT occurrence is defined as follows:

CMT Potential Zone: Any area within 150 m of a named lake, named river, unnamed lake and unnamed perennial creek regardless of slope. In addition, there is potential for CMT presence within 50 m of any identifiable trail.

It is recommended that if any portion of a future development is within a high or moderate archaeological potential zone, an archaeological impact assessment (AIA) should be conducted. No archaeological impact assessment work is recommended for development areas exclusively in a low archaeological potential zone.

Should any portion of a future development outside a high or moderate archaeological potential zone fall within a CMT potential zone, it is recommended that the development be subject to a reconnaissance survey designed to identify the presence of CMTs. If CMTs are identified, a full archaeological impact assessment (AIA) conducted under Heritage Conservation Act guidelines will be required to record, evaluate and date the culturally modified trees. Reconnaissance survey does not require an Heritage Conservation Act Permit. It should be noted that this CMT potential zone is based on scant data and should be re-evaluated, perhaps on a yearly basis depending on CMT return in future programs.

If any recorded CMTs are dated to pre-1846, appropriate measures of protection will be implemented following the *Heritage Conservation Act*. However, CMTs post dating 1846 should be carefully managed as traditional use features, requiring further consultation between First Nations, the Ministry of Forests and the forestry licensees.

First Nation consultation with Nedo'ats (Old Fort) community members and trapline headholders provided invaluable information on potential site and trail locations and culturally sensitive areas. The archaeological and CMT potential models have made extensive use of this information while keeping specific identified site locations and sources confidential at the request of the consultants. It is recommended that prior to the initiation of any field survey, AIA or reconnaissance, the appropriate First Nations be contacted and directly consulted regarding community knowledge and/or concerns with

proposed development locations. If specific concerns regarding known but unrecorded sites are raised, management decisions regarding site survey and/or avoidance can then be made.

This overview is intended to enable Ministry and industry staff to make appropriate decisions regarding requirements for future Archaeological Impact Assessment (AIA) studies for proposed forestry developments. Although the present program makes use of information gathered from First Nation community members it is not intended to address detailed traditional use of the study area. Information gathered during our 1997 consultation program and that used in the refining of the AOA model was of an archaeological nature only. Traditional aboriginal use of the study area is a separate undertaking; the recommendations here apply solely to physical archaeological evidence of past human activity.

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Appendix A

Information Sharing Agreement

Information Sharing Agreement

This is an agreement between I.R. Wilson Consultants Ltd., Shamaya Consulting and _____ (First Nation Consultant) regarding the use of oral history information in the Morice Forest District Archaeological Inventory Study. All information provided by elders of the trapline territory will be kept in strict confidentiality. No information will be given to the government (INAC, Forestry, Fisheries), band offices, treaty office or anyone else unless clear permission is provided by the trapline headholder. A copy of the information report for their territory will be given to each headholder by I.R. Wilson Consultants Ltd., but not to anyone else. The headholders can decide in the future if they want to provide this information to other people. We are asking your permission now to borrow this information for building a better archaeological model to help forestry protect Old Fort (*Nedo'ats*) and Fort Babine (*Wit'at*) traditional territory cultural heritage resources.

Appendix B

Glossary of Terms

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Anthropology

The study of human cultures and how they interact with their environments over time. In order to interpret the many aspects of cultures it is important to include ethnographies, oral history, archaeology, as well as cultural and physical anthropology.

Archaeology

The study of past human activity based primarily on the recovery, analysis, description of physical evidence. Although ethnographic and oral histories are used in archaeology, emphasis is placed on information retrieved from excavations and surveys.

Archaeological Impact Assessment (A.I.A.)

A study that attempts to identify and evaluate heritage resources within a proposed development area as well as the assessment of possible impacts by the development on these sites. This work forms the basis for determining the need for additional mitigative work

Archaeological Inventory

A study that attempts to identify the presence or absence of physical archaeological materials and/or evidence.

Archaeological Overview Assessment

A study of documents and maps intended to identify and assess heritage resource potential or the likelihood that sites are present within a given area.

Archaeological Site

Archaeological site means any geographical location that contains physical evidence of past human activity for which the application of scientific and archaeological methods of inquiry (i.e. site survey, excavation, data analysis etc.) are the primary source of information. These sites do not necessarily hold direct associations with living communities. Examples of archaeological sites include *shell middens, lithic scatters, house pits, petroglyphs and pictographs.*

Artifact

An object (often bone or stone) intentionally modified through human action; for example, a projectile point.

Burial

The intentional interment of human physical remains buried in either a primary (original burial) or secondary (reburial) context. The position, direction and environment surrounding the burial reveal significant information about the individuals culture and community.

Cache Pit

A circular depression in the ground less than 3 meters wide and usually lined with stones. Within these pits food, and other necessary items could be stored and covered with larger stones in order to protect them from wildlife predators.

Culturally Modified Tree (CMT)

A tree that has been historically or prehistorically modified by native or non native people. In the field of archaeology a C.M.T is most commonly associated with Native peoples historical or prehistorical tree utilization. Tree use can be identified by scars from bark stripping; blazing; plank removal; test holes or felling. Bark strips may be long and tapered vertically or wide and horizontal around the tree. The most common types of trees revealing these scars include Red and Yellow Cedar, Birch, Lodgepole Pine and Hemlock.

Excavation

Usually involving the hand excavation of test units in natural or arbitrary levels.

Habitation/Housepit Site

A site, used frequently over multiple occupations, represented as one or more circular or rectangular depressions in the ground revealing evidence of seasonal or permanent habitation. The size of these depressions can average from approximately 3 to 8 meters wide and approximately 1 to 3 meters deep. Habitation sites are important for the study of past lifeways and generally have high heritage significance.

Historical Site

A place which indicates past human occupation or use dating from 1847 forward. Historical sites can be studied not only by archaeological methods but also through the analysis of written records.

Lithic Scatter

Evidence of stone artifact processing, production and/or maintenance, where the excess *flakes* have been removed from the tool and discarded. Archaeologists use this information to identify the types of tools and materials being used during a specific time.

Mitigation

Any course of action that results in the reduction or the elimination of the adverse impacts of a development. Mitigation usually involves site protection, project redesign or systematic data recovery, normally involving archaeological excavation.

Roasting Pit

Similar to a cache pit, roasting pits reveal small stone lined depressions in the ground providing an oven like environment for cooking food. Long exposure to this heat usually breaks apart these stones, creating what Archaeologists call *fire cracked* or *fire broken rock*. This evidence helps to reconstruct the types and techniques of food processing.

Rock Art Sites

These sites exhibit images on (usually) non-portable lithic materials. Such sites can be grouped into two categories: *petroglyphs* (pecked designs); and *pictographs* (painted designs). These images are often placed in highly visible locations and can date from either the prehistoric or historic periods.

Shovel Tests

Similar to exploratory units, shovel tests also reveal information from below the surface but on a smaller and less precise scale. The significance of a shovel test is to identify the presence or absence of historic and prehistoric physical evidence.

Survey

A step of the archaeological impact assessment and inventory whereby areas are examined by foot for archaeological evidence based on recorded archaeological sites, known areas of ethnographic use, land forms, tree and plant types, terrain, and location of water sources.

Traditional Use Site

The term Traditional Use Site means any geographically defined area that has been customarily used by one or more contemporary groups of aboriginal people for some type of culturally significant activity. These sites may not reveal physical evidence of use. Traditional use sites are usually documented through oral, historical, and archival sources. Examples of Traditional Use Sites include: ritual bathing pools, resource gathering areas, locations of culturally significant events etc.

Appendix C

Model Development Compiled Data

Table 1: Site Attributes and Distance from Water

| Type of Water | Distance | CM | CMT | HAB | HUM | PIC | SF | Total | % Total |
|-------------------|----------|-------|------|------|------|------|-------|-------|---------|
| Named Lake | - | 9 | | | | | 2 | 11 | 3.4% |
| Named Lake | <0 | 5 | 1 | | | | 1 | 7 | 2.1% |
| Named Lake | <050 | 45 | 1 | 13 | | 4 | 178 | 241 | 73.7% |
| Named Lake | <100 | 5 | | 4 | 1 | | 20 | 30 | 9.2% |
| Named Lake | <150 | | | 1 | | | 2 | 3 | 0.9% |
| Named Lake | <200 | 2 | 1 | 1 | | | 4 | 8 | 2.4% |
| Named Lake | <350 | | 1 | | | | | 1 | 0.3% |
| Named Lake | <500 | | 1 | | | | | 1 | 0.3% |
| Named Lake | <950 | | 1 | | | | | 1 | 0.3% |
| Named Lake/River | <050 | 1 | | | | | 2 | 3 | 0.9% |
| Named Lake/U. T. | <050 | | | | | | 1 | 1 | 0.3% |
| Named River | <050 | 6 | | 1 | | | 5 | 12 | 3.7% |
| Named River | <100 | | | 1 | | | 1 | 2 | 0.6% |
| Named River | <200 | 2 | | | | | | 2 | 0.6% |
| Unnamed Lake | <200 | | | | | | 1 | 1 | 0.3% |
| Unnamed Lake | <400 | | 1 | | | | | 1 | 0.3% |
| Unnamed Lake | <600 | | 1 | | | | | 1 | 0.3% |
| Unnamed Tributary | <050 | | | | | | 1 | 1 | 0.3% |
| Total | | 75 | 8 | 21 | 1 | 4 | 218 | 327 | |
| % Total | | 22.9% | 2.4% | 6.4% | 0.3% | 1.2% | 66.7% | | |

Site Attributes: CM=Cultural material; CMT=Culturally modified tree; HAB=Habitation; HUM=Human burial; PIC=Pictograph; SF=Subsistence feature; Type of Water: U.T.=Unnamed tributary

Table 2: Recorded Sites in Proximity to Water

| Distance | Named Lake | Named Lake/River | Named Lake/Unnamed Tributary | Named River | Unnamed Lake | Unnamed Tributary |
|----------|------------|------------------|------------------------------|-------------|--------------|-------------------|
| <0 | 6 | | | | | |
| <050 | 191 | 3 | 1 | 8 | | 1 |
| <100 | 23 | | | 2 | | |
| <150 | 2 | | | | | |
| <200 | 5 | | | 2 | 1 | |

Table 3: Recorded Sites and Aspect

| Aspect | Number of Sites | % Total |
|--------------|-----------------|---------|
| No Aspect | 13 | 4.9% |
| N | 25 | 9.4% |
| NE | 9 | 3.4% |
| E | 45 | 16.9% |
| SE | 6 | 2.2% |
| S | 25 | 9.4% |
| SW | 6 | 2.2% |
| W | 86 | 32.2% |
| NW | 7 | 2.6% |
| ISLAND | 45 | 16.9% |
| Total | 267 | |

Table 4: Site Type and Elevation

| Site Type | 550:599 | 650:699 | 700:749 | 750:799 | 800:849 | 850:899 | 900:949 | 950:999 |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|
| CM | 1 | | 50 | 5 | 1 | 2 | 3 | |
| CMT | | | | 2 | | 3 | 1 | 2 |
| HAB | | | 17 | 4 | | | | |
| HUM | | | 1 | | | | | |
| PIC | | | 4 | | | | | |
| SF | 1 | 1 | 190 | 19 | 3 | 1 | | |

CM=Cultural material; CMT=Culturally modified tree; HAB=Habitation; HUM=Human burial; PIC=Pictograph; SF=Subsistence feature

Table 5: Recorded Sites and Elevation (Not CMT)

| <> | 550:599 | 650:699 | 700:749 | 750:799 | 800:849 | 850:899 | 900:949 |
|----|---------|---------|---------|---------|---------|---------|---------|
| 16 | 2 | 1 | 205 | 22 | 4 | 3 | 3 |

Table 6: Recorded Sites and Elevation (CMT)

| 750:799 | 800:899 | 900:949 | 950:999 |
|---------|---------|---------|---------|
| 2 | 2 | 1 | 2 |

Table 7: Recorded Sites and Biogeoclimatic Zone

| 1:50,000 Map | <> | CWH ws2 | ESSF mk | SBS dk | SBS mc2 |
|--------------|----|---------|---------|--------|---------|
| 93K12 | | | | 1 | |
| 93K13 | | | | 17 | |
| 93L15 | | | | 1 | |
| 93L16 | | | | 45 | |
| 93M1 | 1 | | | 56 | |
| 93M2 | | | | 63 | |
| 93M7 | | | | 16 | |
| 93L7 | | | | | 3 |
| 93L8 | | | | | 1 |
| 93E10 | 10 | | | | |
| 93E13 | | 8 | | | |
| 93E14 | | | 2 | 2 | |
| 93E15 | | | | 3 | 2 |
| 93E16 | | | | 4 | 2 |
| 93E7 | 1 | | | | |
| 93L1 | | | | | 4 |
| 93L2 | | | | 1 | 2 |
| 93L3 | | | | 13 | |
| 93L4 | | 2 | 2 | 1 | |