Archaeological Overview Assessment
Northern Secwepemc Traditional Territory

FINAL REPORT

Prepared for the First Nations of:

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Management Summary

This archaeological overview assessment of the traditional territories of the Northern Secwepemc First Nations (NSFN) was undertaken at the request of the Canim Lake, Canoe Creek, Soda Creek and Williams Lake bands. Though our contract was through the Williams Lake Band representing the other NSFN bands, funding for the project was from the Ministry of Forests, Cariboo Region. The provincial Archaeology Branch of the Ministry of Small Business, Tourism, and Culture monitored the progress of the project and ensured that it adhered to and was consistent with the provincial guidelines for archaeological overview assessments.

The purpose of this study is to develop a predictive model for the occurrence of archaeological resources and provide written and mapped information on this archaeological resource potential. Much of the data and interpretation in the following pages are of a technical nature but as far as is possible, discussions are presented in a non-technical manner.

In terms of determining archaeological potential within the project area, archaeological resources are the sole focus of the analysis. This report is not designed to assess traditional use of the project area by First Nations peoples, Ethnographic and ethnohistorical summaries are included primarily as aids to predicting and interpreting archaeological remains. In this attempt to interpret the broader area cultural heritage and identify general areas of sensitivity, emphasis is placed on information that pertains to the traditional use of broad landscape areas only. Specific traditional use site data and resources, individual place names and other aspects of a detailed traditional use study are not addressed.
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1. Introduction

The following archaeological overview assessment has been prepared at the request of the Northern Secwepemc First Nations (NSFN) and the Ministry of Forests, Cariboo Region. The provincial Archaeology Branch of the Ministry of Small Business, Tourism and Culture was involved in an advisory capacity in order to ensure that the project was consistent with Archaeology Branch guidelines for Archaeological Overview Assessments as they are presently being conducted.

The project consists of a review and compilation of archaeological and natural resources as well as relevant landscape attributes within traditional territories of the Canim Lake, Canoe Creek, Soda Creek and Williams Lake First Nations. The goal of the project is to establish strategies for the integration of these resources into area land use and resource management plans in order to facilitate their protection. To accomplish this, a model for assessing the potential for archaeological resource occurrence has been developed. This potential model provides a planning tool to reduce conflicts between archaeological resources and development. In future, information pertaining to the potential of encountering archaeological resources will be available at the planning stage of development. This will allow for the implementation of strategies for assessing possible conflicts between these development activities and cultural and heritage resources. Recommended management strategies for the zones of varying archaeological potential determined by this model are provided.

The purpose of this study is to provide written and mapped information on archaeological resource potential including information on the locations of known archaeological sites. The project produced a set of paper maps of the study area identifying known site
locations as well as illustrating the model of archaeological potential. Each archaeological potential polygon and site location is linked with a database record composed of a unique identifier and/or archaeological site descriptor. Both the maps and the linked database information have been digitized and provided in Arc-Info export format.

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) plot all known archaeological sites within the study area at 1:20,000 scale;
3) develop a predictive model and from that determine and map archaeological potential zones within the project area; and
4) recommend management strategies for each of the potential zones.

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 archaeological sites are present in a given area. 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 archaeological overview assessment.

2. Background

2.1 Environment

The study area is within the Fraser Basin physiographic subdivision, characterized by low, flat to gently rolling relief. The area has been cut by the Fraser River and its tributaries and now contains many lakes and poorly drained depressions. Glacial features such as drumlins, eskers and glacially dammed lakes are common in the region (Holland 1976). The study area falls primarily within the boundaries of the Interior Douglas Fir and Sub-Boreal Pine-Spruce biogeoclimatic zones, with portions falling within the Bunchgrass, Montane Spruce and Engelmann Spruce-Subalpine Fir biogeoclimatic zones.
The Interior Douglas Fir biogeoclimatic zone is the warm forested zone characteristic of most of the central Interior Plateau. Higher elevations are characterized by Douglas fir (Pseudotsuga menziesii) and stands of regenerated fodgepole pine (Pinus contorta latifolia), while Douglas fir and ponderosa pine (Pinus ponderosa) are more common at lower elevations. Soapberry (Shepherdia canadensis), kinnikinnick (Arctostaphylos uva-ursi), juniper (Juniperus communis), pinegrass and feathermoss make up the understorey and ground cover. The Sub-Boreal Pine-Spruce zone is characteristic of the colder high elevated plateau regions to the north and west, where regenerated lodgepole pine and white spruce (Pinus glauca) dominate the forests. Understorey and ground cover consists of kinnikinnick, pinegrass, lichens and feathermoss. The Bunchgrass biogeoclimatic zone lines the lowest elevated regions of the Plateau along the banks of the Fraser and Chilcotin rivers. The hot and dry climate facilitates the growth of bluebunch wheatgrass (Agropyron caninum) and sagebrush (Artemisia tridentata), while Douglas fir and ponderosa pine make up the sparse forests. At the middle elevations of the south-central Interior Plateau is the Montane Spruce biogeoclimatic zone, forested by Engelmann spruce (Picea engelmannii), hybrid spruce (Picea luisii), subalpine fir (Abies lasiocarpa), trembling aspen (Populus tremuloides), Douglas fir and lodgepole pine. Finally, the Engelmann-Spruce Subalpine-Fir 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, subalpine fir, lodgepole pine and the occasional mountain hemlock (Tsuga mertensinna) make up the forested regions.

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). Salmon (Oncorhynchus sp.) can be found in the many streams and rivers throughout the project area.
The environmental history of the study area has significant implications for human occupation in the region. The entire study area was overlain by glacial ice with ice retreat and stagnation producing proglacial lakes near the study area. The study area was likely ice-free and habitable by 9,500 to 10,000 years ago (Clague 1981). Following glacial retreat, continuing geological processes further modified the physical landscape of the study area. Fluvial downcutting has occurred, particularly along the higher rivers such as the Fraser and Chilcotin, forming steep canyons, river terraces and scarp slopes (Ryder 1982). Other long term processes including fluvial, alluvial and aeolian deposition and erosion have occurred.

The climate has changed throughout the post-Pleistocene period with varying effects on human populations. Between 12,000 and 10,500 years ago, conditions were cool and moist but this period probably predates human occupations. The next 3,500 years marked a warmer and dryer period known as the Hypsithermal (Hebda 1982, 1986; Mathewes 1985). At this time, grasslands were most widespread with forests confined to upper elevations. Many rivers and lakes were probably either nonexistent or too low to support fish populations undoubtedly resulting in a lower biodiversity than later times, though a variety of land mammal species would have been available for capture. Fishing was not important during this time and settlement patterns were likely different than later times.

Between about 7,000 to 4,500 years before present (B.P.), temperatures remained warm but precipitation increased resulting in expanded grassland/parkland environments (Mathewes 1985). Though fish were likely more abundant, carbon isotope studies suggest a continued high reliance on hunting (Cbisholm 1986).

The period from about 4,500 to 3,000 years ago evidenced a cooler, moister climate than today. Ungulate and plant diversity was likely low, but fish populations showed dramatic increase in size and stability. At this time, the ethnographic pattern common in the region reflecting a reliance on fish and particularly spawning fish likely became established (Fladmark 1982). The past three thousand years has seen a stable environment (Mathewes and King 1989) likely resulting in the apparently stable Native land use patterns, broken briefly through territorial changes and ultimately European arrival.
2.2 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 report are from published and unpublished sources as opposed to original research.

Alexander (1996) presents an extensive summary of these data for lands in the traditional territories of the Shuswap, Carrier and Chilcotin.

2.2.1 Linguistic and Ethnic Affiliations

Three different groups have been known to have used areas within the general region of the project area at some time in the past. These are the Chilcotin and Carrier (specifically the subgroup called the southern Carrier) of the Athapaskan language family and the Shuswap, or Secwepemc, of the Interior Salish language family. While the Shuswap dominate the majority of the area, Chilcotin and Carrier have some territories within the west and north sections of the project area.

Shuswap, together with the Thompson and Lilooet languages, belongs to the Northern group of Interior Salish. The region throughout which Shuswap and other Interior Salish languages are spoken falls within the Plateau culture area. From most available ethnographic literature, it would appear that the majority of the study area is within Shuswap territory, but encompasses an area that was used as hunting grounds by the Chilcotin and Carrier at different periods in the past.

The use of the Indian Affairs administrative term “band” should not be confused with the anthropological use of the same term, meaning a type of social unit. Among the Shuswap, bands were not organized political units. Rather, Shuswap bands, like the neighbouring Chilcotin and Carrier, were “social communities of people living near one another and voluntarily accepting common interests”. In turn, these bands were comprised of “camp clusters” organized on the basis of kinship, friendship, geographic
proximity and mutual interests in resource exploitation (Lane 198:407). Bands generally had central gathering places from which they took their names (Alexander 1996).

2.2.1 I Chilcotin

Chilcotin is one of 23 languages comprising the Northern Athapascan subdivision of the Athapaskan language family. Although the number of Chilcotin bands, their names and their territories have varied over time, the Indian bands who currently identify themselves as members of the “Chilcotin Nation” are the Alexandria Indian Band, the Anahim Indian Band, the Stone Indian Band, the Nemiah Valley Indian Band, the Toosey Indian Band and the Alexis Creek (Redstone) Indian Band (Lane 198:407; Glavin 1992: 150).

The Chilcotin are probably fairly recent arrivals on the Chilcotin Plateau, having moved there from further north. However, neither oral traditions nor origin stories reflect such a move (Lane 198:402).

Traditional Chilcotin territory including its late eastward expansion has been described as follows:

All the Chilcotin lived until about sixty years ago or less on the headwaters of the Chilcotin River and... Salmon [Dean] River and other streams running to the Coast. Their main band had headquarters near Anahim Lake.... After the decimation of the Shuswap of Fraser River by smallpox in the early sixties of the last century, most of the tribe shifted further east to the central portion of the Chilcotin Valley, and some of them settled within Shuswap territory near Fraser River. Later they monopolized some of the more western hunting grounds of the Shuswap and Lillooet west of Fraser River (Teit 1910-1913).

Similar information is provided in Teit’s brief account of Chilcotin ethnography.

Until about thirty-five or forty years ago [prior to 1909], nearly two-thirds of the whole [Chilcotin] tribe lived in the valley which skirts the eastern flanks of the Coast Range from Chilco Lake north to near the bend of Salmon [Dean] River.... The country from a little
below Hanceville, or at least all of it east of Big or Deer Creek, was looked upon strictly as Shuswap territory (Teit 1909b:761).

On the basis of his twelve months of ethnographic fieldwork among the Chilcotin between 1948-1951, Lane made the following observations about traditional Chilcotin territory and its expansion eastward.

In the early twentieth century the Chilcotin occupied the drainage system of the Chilcotin River and the upper reaches of the Homalco, Klinaklini and Dean Rivers.... In pre-European times their territory did not extend so far eastward.... the Chilcotin probably moved from a more northerly region into the Chilcotin plateau in the not too distant past. Their own recollections carry no hint of such a move. They have no traditions of migration or of the origin of themselves as a people. Many older Chilcotins believed that other peoples once lived in parts of what is now Chilcotin territory and that the Chilcotin at that time occupied the drainage systems of the Chilcotin River above where it joins the Chilko River and perhaps the upper Nazko River.... The main valley of the Chilcotin River was the home of a semi-mythical people, the...'little Salishan(s)' who lived in pit houses and subsisted on salmon. The Chilcotin entered the valley, scared the...'[little Salishan]' away and took over the salmon fishing (Lane 1981:407).

It has been suggested, however, that at one time there had been considerable intermarriage between the Chilcotin and the Canyon Shuswap, to the extent that it was estimated the Canyon Shuswap were “nearly half Chilcotin in blood” in 1855. It was further noted that although in general the Chilcotin would seldom winter near the Chilcotin Canyon for fear of attack from the Shuswap and others to the east, sometimes a few of the Chilcotin would winter with the Canyon Shuswap. These latter people were said to be great traders, The Canyon Shuswap controlled part of the Chilcotin salmon supply, and the Chilcotin traded extensively with them (Teit 1909a:513, 535, 570; 1909b:761-763).

2.2.1.2 Shuswap

Shuswap is part of the Interior Salish division of the Salishan language family. More specifically, Shuswap, together with the Thompson and Lillooet languages, belongs to the
Northern group of Interior Salish. The region throughout which Shuswap and other Interior Salish languages are spoken falls within the Plateau culture area.

Shuswap bands, like the Chilcotin, were social units. As mentioned above, these units were similarly comprised of “camp clusters”, linked to one another by “marriage, kinship, and frequent association” (Lane 1981:407; Stryd 1994:7).

Teit wrote the most extensive ethnography of the Shuswap, and collected much of his information from several old men from the Dog Creek and Canoe Creek bands (Alexander 1996:6). Teit (1909b) describes seven “tribal divisions” of the Shuswap, three of which apply to the project area. The *Slemu'lexanum* people made up the “Fraser River Division” of the Shuswap,

...those inhabiting the valley of Fraser River from High Bar to Soda Creek.... All or nearly all their villages and reserves, with the exception of some near High Bar, are situated on the east side of Fraser River (Teit 1909b:453).

Bands in this division include the Soda Creek, Buckskin Creek, Sugarcane or Williams Lake, Esketemc (Alkali) Lake, Dog Creek, Canoe Creek, Empire Valley, Big Bar, High Bar and Clinton (Teit 1909b:457-460).

The *Se'lEmun* people made up the “Can[y]on Division” of the Shuswap, which Teit describes as:

...a name for the district around Chilcotin River, below the can[y]on.... This division lived west of the Fraser, from Churn Creek to beyond Riskie Creek; their main villages being situated at the foot of the can[y]on of Chilcotin River. They claimed the country back to within a short distance of Hanceville...and on the north and south hunted over part of the same grounds used by the Fraser River division (Teit 1909b:453).

This division included the Riskie Creek, North Canyon, South Canyon and Chilcotin Mouth bands. By the time of Teit’s account in 1909 only a few families of this division remained.
Despite the Chilcotin “gradually encroaching on these grounds”, the Shuswap continued to claim this as traditional hunting territory (Teit 1909b:457-460, 462).

The Stie’tamux, or “interior people”, made up the “Lake Division” of the Shuswap, those who inhabited the plateau between the Fraser and North Thompson River, headquartered at Canim Lake. The Lac la Hache, Canim Lake and Green Timber bands are included in this division. According to Teit, traditional hunting and fishing territory included:

> the lakes of the plateau... [they] ranged very little south, east or west, because of their proximity to the grounds of other division. To the north, however, they hunted around the eastern parts of Horsefly and Quesnel Lakes, the Clearwater Lakes, and up into the Caribou Mountains opposite the Yellow Head Pass (Teit 1909b:454).

Other ethnographic accounts of the Shuswap people in this area include Dawson (1892), Morice (1895) and Ray (1939).

2.2.1.3 Carrier (Southern Carrier)

The Carrier live north of Alexandria in the east to a point midway between Ulkatcho and Anahim Lake in the west, and extend northwards. They speak a Northern Athapaskan language (Tobey 1981:413). Three geographically and linguistically distinct Carrier subgroups have been identified; the Southern Carrier is the group that shares traditional territories in and near the study area. Some Carrier migrated from Ulkatcho to Chilcotin territory at Anahim Lake from 1850 to 1949, and a Carrier reserve was officially established there in 1949.

Fourteen subtribes have been identified in various sources, each being a named and localized socioterritorial unit (Tobey 1981:413). Many researchers assume the Carrier originally lived east of the Rocky Mountains but moved many centuries ago into their present homeland in northern British Columbia (Tobey 1981:415).
Portions of the northern edge of the Williams Lake Forest District is claimed by the modern Alexandria, Nazko and Red Bluff bands (Alexander 1996:12).

2.2.2 Settlement Patterns, Ethnography and Ethnohistory

Reports pertaining to settlement patterns, ethnography and ethnohistory vary by area with some well described and others poorly recorded. The following is a discussion on Chilcotin, Shuswap and Carrier settlement patterns and other ethnographic information. The information is based on a small but well known set of published and unpublished sources.

Significant social changes in settlement patterns of all three groups can be seen after 1800, and was likely stimulated by direct or indirect contact with Euro-Canadians. One result of such contact was the arrival of smallpox. Smallpox epidemics made huge impacts on Native populations, sometimes devastating whole social groups, resulting in changes in band composition and location (Alexander 1996:11).

2.2.2.1 Chilcotin

Very little has been written about Chilcotin ethnography or ethnohistory. The following general account of Chilcotin ethnography and subsistence activities is drawn primarily from the work of Lane (1953, 1981) and from Tyhurst (1975-1976), a study based on nearly four months of fieldwork among the Stone and Nemiah bands.

In November, the Chilcotin moved into winter camps by lakes that had good supplies of fish. Like the Carrier, they usually wintered in smaller, more scattered villages than the Shuswap (Furniss 1993a:2; Lane 1981:409; Tobey 1981:414-5 in Alexander 1996:9). Traditional winter structures were rectangular above-ground houses. Rafters were laid on a central ridge pole in this house which typically would measure twenty feet long by fifteen feet wide (Lane 1981). The Chilcotin hunted and fished while these winter quarters were being prepared.

Early in December, most hunting ceased and ice fishing was undertaken, but during late December and throughout most of January, people stayed inside as much as possible, living on stored food. By March, people began leaving their winter camps to hunt for game. In
April and May, weirs and traps were prepared and fishing began in the streams where fish spawned. There was also trapping and plant food gathering at this time. Hunting intensified in May and June, and fishing continued. In late June, people in large groups moved gradually into the mountains, hunting, trapping, picking berries, and digging roots. After mid-July, when the salmon arrived, almost everyone gathered at fishing sites and numerous camps along the Chilcotin and Chilko rivers. In September, after the salmon runs, family groups dispersed in different directions to do more trapping and lake fishing. In late September and throughout October, people concentrated on hunting. By November, most were back at the lake, preparing for winter (Lane 1953:46-47, 144-146; 1981:403, 406).

Fishing activities included use of several types of fish traps. In lakes, different styles of basketry traps were used in conjunction with weirs to catch three main species including trout, whitefish, and suckers, and sometimes land-locked salmon. Weirs and traps were used in streams to catch spawning lake and stream fish, and in larger rivers for salmon, Dipnets and gaffhooks were also used to catch salmon (Lane 1953:43-44; 1981:405).

The most important game animals hunted by the Chilcotin were elk, caribou, deer, mountain goat, black bear, beaver, muskrat, groundhog and rabbits. As well, various species of ducks, geese, grouse, ptarmigan and other game birds were hunted. Deer, caribou and elk were killed with bow and arrows or with spears. Bears were speared or clubbed. The most important means of obtaining both animals and birds was by the use of snares and traps. Most traps were of the deadfall variety, with the exception of pitfalls which were used for deer. Ducks and geese were clubbed during their moulting periods; most other birds were snared (Lane 1953:44-45, 1981:405). Tyhurst (1975-1976:19-23) recorded the Chilcotin names for 34 species of mammals known to members of the Stone and Nemiah Indian bands. It has been reported that the first moose was observed in the Riske Creek area in 1914, and that elk were plentiful prior to the late 1880s (Terry [1958]:29).

It is Lane’s (1953:45) view that among the Chilcotin, although plant foods were important in times of starvation, they were used mainly as condiments and to vary the diet. Berries were gathered wherever they were available. Special trips were made into the high elevation
areas to obtain “Mountain carrots” and “Mountain potatoes” in considerable quantities. Tyhurst recorded information on the Chilcotin (Stone and Nemiah) names and uses of about 80 plant species including trees. Whitebark and lodgepole pine were stripped for cambium

2.2.2.2 Shuswap

Although similar to that of the Chilcotin, there are some differences in emphasis surrounding the Shuswap seasonal round.

The Shuswap moved to their winter dwellings, semi-subterranean pithouses, in about November and spent the winter months largely reliant on stored foods, particularly salmon. Winter villages were usually at or near a large main village, as opposed to the Chilcotin and Carrier who wintered in smaller, more scattered villages (Dawson 1892:4-7; Teit 1909b, 1930:261-2 in Alexander 1996:9). Stored foods were supplemented by dried roots and berries and occasionally complemented by fresh game (Dawson 1892; Teit 1909b). Winter was a time of tanning hides and probably of making clothes and weaving baskets (Teit 1909b).

In April, people began to leave their winter dwellings and split into smaller socio-economic groups. These smaller groups would exploit various animal and plant resources. This would include collecting roots dug with digging sticks. The roots would be either dried or cooked in earth ovens. Housing consisted of above-ground circular mat lodges, though bark or skins could be substituted as a covering (Teit 1909b). Cambium from a variety of trees was also collected at this time, either to be eaten raw or dried for winter use (Ray 1932). Migrating birds were taken by a variety of methods during this time.

Hunting activities were done both communally and individually using a variety of methods, including bows and arrows, spears, traps and fences.

The months of June and July were spent gathering wild onion and collecting early berries. Hunting and fishing likely supplemented this diet of roots and ripening berries. During this time, food processing, food storage and hide processing would have been major activities.

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The first part of August saw the first of the salmon runs at which time the focus would become procurement and storing of fish. Fish were taken with bag-nets, weirs, spears, leisters, dipnets and trolled and dragged hooks. Salmon were eaten, smoked and dried, with roe prepared for eating and fish oil obtained by rendering. Some berry gathering was also carried out during the salmon season. Salmon was stored in cache pits at the end of this season (Teit 1909b).

The fall was spent gathering berries and roots as well as in hunting of land mammals, apparently an activity of limited importance to the Canyon Shuswap.

The relatively recent use of pithouses was discussed in a personal interview with a Soda Creek First Nation member:

It is interesting to note that pithouses were occupied at Soda Creek until around 1930. Lucy Charley, for example (J. Gilbert’s paternal grandmother: MoFaMo), was born and raised in a pithouse until 1930 at which time she moved into a log house (Walde et al. 1994:9).

Heritage North Consulting Limited also discusses the area resided in by the Soda Creek people.

In the late 1700s, the territory of the Soda Creek people likely extended halfway to Alexandria and south past Deep Creek (Hawks Creek) to Whiskey Creek. According to Voorhis (1930), the first trading post, Fort Alexandria, was established in the area between 1800-1805 by the Northwest Company. The post was built on the site of an Indian village visited by Alexander Mackenzie in 1795. The post was abandoned in 1821 when the two trading companies amalgamated. In the same year the Hudson Bay Company reestablished another nearby post with the same name (Voorhis 1930; Morice 1978). In the 1840s missionary activity began, with the eventual establishment of the Oblate’s residential school at St. Joseph’s Mission in the 1860s (Walde et al. 1994:9).
2.2.2.3 Carrier

Traditionally, the Southern Carrier were hunters, fishers and gatherers who followed a pattern of season transhumance taking advantage of a variety of resources seasonally available at different locales throughout their territory. From spring to fall, small family groups dispersed to fish, hunt and gather plants. During this time of year, people typically lived in temporary brush shelters (Furniss 1993; Kew 1974). In the fall, people would congregate to take advantage of anadromous fish runs. Dwellings consisted of more permanent fishing houses constructed from trees and saplings, roofed with bark (Furniss 1993). Greatest population aggregation occurred in winter when permanent villages situated in major river valleys or around lakes were occupied. Dwellings consisted of semi-subterranean circular pithouses with earth covered conical roofs (Ray 1939). Food was stored for the winter months on elevated platforms or in underground pits lined with bark.

Anadromous fish including sockeye, spring, pink and coho salmon and steelhead were very important to traditional economy as were several non-anadromous species such as Kokanee, Dolly Varden, rainbow trout and whitefish.

Hunting focused on ungulates such as caribou, moose, deer and elk. Other important species included black and grizzly bear, mountain goat, hare, beaver, muskrat, marmot, fisher, martin, porcupine, grouse, ducks and geese (Tobey 1981).

Various plant foods including a variety of edible roots cooked in underground tire pits were gathered on a seasonal basis. Lodgepole pine cambium was an important resource, particularly in the spring (Furniss 1993).

More complete information on the Southern Carrier in general is available in Harmon (1957), Morice (1895) and Jenness (1943). The specific seasonal round of the Red Bluff band has been summarized by Dewhirst (1993).
2.2.2.4 Ethnographic Data Utility for Model

Several ethnographic patterns are apparent which have archaeological relevance, particularly to habitation and subsistence activities.

All groups used winter habitations with high archaeological visibility at least over the past 4,000 years. These sites included semi-subterranean houses and storage features which have high archaeological visibility. Summer habitations have less substantial habitation features but may include storage features. Generally, summer habitations are less archaeologically visible because of their general absence of identifiable features. Winter habitation is associated with large water bodies. Summer habitation has similar although more variable patterning.

In terms of ethnographically known subsistence patterns, both fish and large mammals were important. Fish are obviously confined to water ways and presumably had a similar distribution to today. Large mammals are more dispersed and difficult to model, especially considering that even subtle changes in climate affect the distribution of all species. Plant resources (including high elevation resources) were used but for the most part are only mapped today as broad spectrum of species rather than specific plant distributions. Their distribution also varies with climate change in a generally predictable way but only in a macrotopographical sense.

2.3 Archaeology and Cultural Traditions

The prehistory of this region is amongst the most poorly known in the province as relatively few excavations have been undertaken. Most researchers have applied models developed largely from the Fraser River and Thompson River areas south and east of the study area (Richards and Rousseau 1987). Most of the nearby archaeological excavations have been conducted in the Williams Lake area at house pit sites FaRm 8 (Williams 1974; Whitlam 1976), FaRn 3 (Carl 1972; Whitlam 1976), FbRn 13 (Kenny 1972) and ElRu 3 (Whitlam 1976). A few other site types have been excavated in the Williams Lake area near Brunson Lake (Lawhead 1979) and at FaRm 23 (Rousseau and Muir 1991). Bussey (1983) has also excavated near Alexis Creek and Magne (1984, 1985 a, c) has excavated in the Gunn and
Yohetta valleys as part of his Taseko Lakes prehistory project. Roscoe Wilmeth (1968, 1969, 1978) conducted extensive excavations over a number of years at the “Potlatch Site”, FcSi 2, near Anahim Lake. Recently, Dahlström and Wilson (1998) report on a systematic surface collection and testing program at Drewry Lake which suggests a late Middle period-Plateau Pithouse tradition occupation. As well, excavations were conducted at a lithic scatter site on Little Horsefly Lake (Wilson et al. 1998).

David Sanger (1963, 1966, 1969, 1970) established a five part prehistoric sequence based on his early work in the mid Fraser region, a sequence that was virtually unchallenged for more than two decades. Today, a tripartite scheme is most often used, though different divisions have been proposed (Fladmark 1982; Stryd and Rousseau 1996). This sequence has been most recently discussed by Stryd and Rousseau (1996) and Rousseau and Richards (1985). This sequence has been summarized (Wilson et al. 1992, 1995) and includes some new interpretations based on research near Kamloops. Very generally, regional prehistory is discussed in terms of an Early period, a Middle period, and the Plateau Pithouse tradition.

2.3.1 Early Period

As in all other areas of the province, the Early period is most poorly documented. Stryd and Rousseau (1996) base their Early period on climate and define the period from deglaciation to the end of the Hypsithermal, which they assess at 7,000 years ago. For such a poorly known time period, a disproportionately large number of “traditions” and “complexes” are hypothesized with different local and regional names. Carlson (1983) has provided a broad regional overview of early traditions in western North America.

The Fluted Point tradition is suggested from a single biface in a Shuswap Lake surface collection (Stryd and Rousseau 1996) and from another surface collected point base near Chase (Fladmark 1982). An apparently similar point to this latter specimen was also recovered from a high altitude meadow near Ashcroft (Rousseau and Gargett 1987). No dated manifestations of this tradition are known in the region.
Some researchers have suggested that the Early Stemmed Point tradition may predate fluted points. Stryd and Rousseau (1996) illustrate a number of specimens “provisionally assigned” to this tradition, all recovered in undated surface collections.

Stryd and Rousseau (1996) suggest the presence of the Plan0 tradition, citing a museum piece with no provenience (Sanger 1970) and Shuswap Lake surface collections (Grabert 1974). Again, there is no archaeologically documented evidence of this tradition in the region.

Sanger (1968) assigns all microblades from the Interior Plateau to his Plateau Microblade tradition. Among the earliest dated microblades in the study region are those which occur beneath Mazama ash at the Drynoch slide site in the Thompson Canyon, dated to 7,530 ± 270 years B.P. (Sanger 1967:189). More recently at the Landels site (EdRi 11), located at the eastern end of the Upper Oregon Jack Creek area in the vicinity of Ashcroft, a pre-Mazama component dating as early as 8,400 ± 90 years B.P. was recovered. Microblades were the most common tool type from this small assemblage (Rousseau et al. 1991). Microblades do continue through the regional sequence for several thousand years, however, and their undated presence does not necessarily imply great antiquity. The “Early Microblade complex” is not well-defined and should likely be deleted from discussions of cultural traditions in the area as the microblade and core industry is obviously a technological tradition rather than a cultural one.

The Old Cordilleran tradition is known largely from the Columbia Plateau and the southern and central Northwest Coast (Carlson 1983; Fladmark 1982). It has also been labelled the Protowestern tradition (Borden 1969, 1975) and the Pebble Tool tradition (Carlson 1983). Characteristic of this period are unifacial pebble tools and unstemmed leaf-shaped points. No sites attributed to the Old Cordilleran date to the Early period in the study area.

Other than the above-noted Drynoch slide microblade component and the Landels site pre-Mazama component, the only other dated site relating to the Early period is the Gore Creek burial: the redeposited human remains of a young adult likely killed in a mudslide. The
remains date to 8,215 ± 115 years B.P. (Cybulski et al. 1981). Neither the Gore Creek burial, the early Ländels site component nor the Drynoch slide assemblage can be assigned to any of the above named cultural traditions. The hypothesis that a number of mixed traditions were present in the study area prior to 7,000 years ago is presently entirely speculative. All that is known is that parts of the region were inhabited before the Mount Mazama eruption with the oldest materials at least 8,400 years old.

2.3.2 Middle Period

Stryd and Rousseau (1996) define the Middle period as the time spanning the commencement of the Nesikep tradition at about 7,000 years B.P. to the commencement of the Plateau Pithouse tradition at between 3,500-4,000 years ago. Two different cultural traditions have been proposed during the Middle period. These include the Nesikep tradition, spanning the years between 7,000-4,400 B.P. comprising the Early Nesikep tradition and the Lehman phase; and the Sqleiten tradition, spanning the period between 5,500 years B.P. to the Historic period. The Sqleiten tradition comprises the Lochnore phase and the Plateau Pithouse tradition (Stryd and Rousseau 1996). There is much debate regarding the presence of these two traditions (see Wilson et al. 1992) as well as their visibility in archaeological sites. However, they are very briefly discussed as these terms are still commonly used in the archaeological literature.

Though the Nesikep tradition was originally defined by Sanger (1969), it has been redefined (Stryd and Rousseau 1996). The Early Nesikep tradition dates from 7,000 to 6,000/5,500 years ago. Traits of this Early Nesikep tradition include: well-made lanceolate, corner-notched and barbed points; a high incidence of formed unifaces; a microblade technology employing wedge-shaped microblade cores; antler wedges; ground rodent incisors; bone points and needles; small oval scrapers, some with bilateral side notches; and faunal assemblages which include deer, elk, salmon, trout: bird and freshwater mussels. Points are generally lanceolate and well made, with a variety of attributes including basal grinding and thinning (Stryd and Rousseau 1996).
The later stage of the Nesikep tradition is the Lehman phase, presently proposed as spanning the period 6,000/5,500 to 4,400 years B.C. Stryd and Rousseau (1996) list a series of distinguishing criteria for the Lehman phase which include thin pentagonal points with obliquely v-shaped corner or side notches; lanceolate knives with straight cortex-covered bases; elliptical knives with prominent basal striking platforms; thin continuous edged circular scrapers; horseshoe-shaped convex end scrapers; a high proportion of fine and medium grained basalts; and no microblades. Stryd and Rousseau assume portable shelters, a nomadic lifestyle and a predominantly land-based economy (1996).

The Sqelten tradition is a recently defined theoretical construct which presumes a 5,500 year cultural continuum (Stryd and Rousseau 1996). The tradition is seen as a river oriented culture emerging as a result of migration of Salish people into the area to exploit the increasingly predictable salmon runs up the Fraser. The tradition is divided into the initial Lochnore phase, followed by the Plateau Pithouse tradition comprised of the Shuswap, Plateau and Kamloops horizons respectively (Richards and Rousseau 1987; Rousseau and Richards 1985).

The following traits are characteristic of the Lochnore phase: leaf-shaped to lanceolate points with wide side-notches; heavy basal grinding and pointed or convex bases (Lochnore side-notched); bipointed leaf-shaped points; oval bifaces; round to oval scrapers; concave-edged end scrapers “on silicas”; a macroblade technology; a microblade technology “at some sites”; cobble choppers; notched pebbles; edge battered cobbles; scrapers on macroblades; occasional sinuous to denticulate artifact edges; and predominant use of non-vitreous basalts. Lochnore points are described as thick, compared to thin Lehman points. Only Lochnore side-notched points, concave edge end scrapers on silicas and macroblade technology are diagnostic of the Lochnore phase according to present definitions. Evidence for hunting of deer, elk, beaver, duck, and goose(?), salmon fishing and freshwater mollusc collection is present, though intensive exploitation of salmon, the apparent hallmark of the phase, is not known.
2.3.3 Plateau Pithouse Tradition

The Plateau Pithouse tradition forms the final 3,500-4,000 years of the prehistoric record in the region and has been proposed by Rousseau and Richards (1985) and Richards and Rousseau (1987). The tradition is divided into three horizons, all characterized by the presence of semi-permanent pithouse villages and storage pits, suggesting intensive salmon exploitation.

The initial horizon in this tradition is the Shuswap horizon dating between 3,500 to 2,400 years B.P. (Rousseau and Muir 1991). The transition to the Plateau Pithouse tradition has been hypothesized to reflect adaptive responses to changing environmental conditions that occurred during the cool, moist climatic optimum at about 4,000 years B.P. (Kuijt 1989). The period is characterized by medium to large house pit depressions with storage pits within house pit floors, key-shaped formed unifaces, thumbnail scrapers, a variety of distinctive projectile points inferred as atlatl points (see Richards and Rousseau 1987), convex-edged hide scrapers, split cobble tools, high frequencies of utilized and retouched flakes, reliance on local lithics (particularly basalts), a well-developed bone and antler technology and flexed burials within house pits. A wide variety of faunal resources has been recovered from Shuswap horizon sites including mammals, birds, freshwater mussels, and freshwater and anadromous fish. Microblades are occasionally found and ground stone remains are rare.

Plateau horizon occupations are documented between 2,400 and 1,200 years B.P. The period is characterized by smaller house pit depressions which range from oval to circular and lack rims. A central hearth is usually present. Other house pit features suggest close parallels with ethnographically described houses. Projectile points are usually bilaterally barbed with either corner or basal notches falling into two size groups inferred to be atlatl points and arrow points. A variety of leaf-shaped and stemmed points are also present but usually comprise a small portion of the assemblage. Utilized and retouched flakes are common and key-shaped unifaces and bifaces increase in importance. Microblades and cores have been reported and ground stone remains are rare. An improvement in workmanship is noted perhaps related to an almost exclusive reliance on high quality lithics,
notably vitreous basalt, obsidian and cryptocrystalline silicates. Some sites have native copper artifacts and an apparent increase in bone, tooth and antler artifact types occurs. Tubular beads, gaming pieces and incisor tools appear. There is an increase in the frequency and variety of coastal shells including \textit{Olivella}. Little is known of burial practices and the most significant dietary change is the apparent intensive utilization of mid-altitude root resources (Pokotyllo and Froese 1983). Salmon exploitation has become as important as in historic times (Chisholm 1986).

The Kamloops horizon evidences highly variable house pit sizes and shapes. Small side-notched points are extremely common as are a variety of other arrow points. Microblades are not present. Ground stone, bone, antler and tooth artifacts all become more common and burials are well-documented. Wealth items are occasionally associated with burials.

2.3.4 Summary

In summary, the \textit{prehistory} of the region is divided into the Early period, the Middle period and the Plateau Pithouse tradition. The Early period consists of several hypothesized traditions, but evidence is still too weak to define these with any credibility. The Middle period is marked by two separate and, for a time, contemporaneous traditions: the Nesikep tradition and the Sqélethen tradition. The last period is known as the Plateau Pithouse tradition which Stryd and Rousseau (1996) include as part of their Sqélethen tradition. If the Plateau Pithouse tradition is part of the Sqélethen tradition, it should probably have a different name such as Plateau Pithouse complex. As well, the recent definition of the Lehman phase and hypotheses concerning the separation of two separate cultural traditions in the Middle period, Lochnore and Lehman, has been added. Most recently, Wilson \textit{et al} (1992) have examined this sequence in depth and have offered some alternative ideas about past populations of the region and their archaeological identifiability.

2.3.5 Central B.C. Prehistory

Helmer (1977) proposes a three part prehistoric cultural sequence for the Carrier and other nations of central British Columbia. The Early Prehistoric period (2,500 B.C. to A.D. 1) is characterized by “fish-tailed” projectile points. The Middle Prehistoric period (A.D. 1 to 1,300) is represented by differing styles of corner and side-notched points. The Late
Prehistoric period is characterized by small side-notched and triangular projectile points (Clarke 1981). Very little research has been undertaken toward establishment of a more detailed prehistoric sequence.

<table>
<thead>
<tr>
<th>Period</th>
<th>Representative Sites</th>
<th>Diagnostic Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISTORIC PERIOD A.D. 1700-1860</td>
<td>Chinlac, Natlkuz Lake, Anahim Lake, Nadsaldalia Crossing, Ulgatcho, Tezli, Punchaw Lake</td>
<td>Euro-Canadian trade goods, small side-notched projectile points, polished adze blades, bone points</td>
</tr>
<tr>
<td>LATE PREHISTORIC PERIOD A.D. 1300-1700</td>
<td>Natalkuz Lake, Anahim Lake, Tezli Punchaw Lake</td>
<td>Several varieties of small side-notched projectile points, several varieties of corner-notched points, flaked and ground stone adzes, bone points</td>
</tr>
<tr>
<td>MIDDLE PREHISTORIC PERIOD A.D. 1-1300</td>
<td>Anahim Lake, Tezli, Punchaw Lake</td>
<td>Several varieties of corner-notched points, several varieties of large side-notched points, bipolar cores, microblades (?) and microblade cores (?)</td>
</tr>
<tr>
<td>EARLY PREHISTORIC PERIOD 3000 B.C.. A.D. 1</td>
<td>Natalkuz Lake, Horn Lake, Southwest, Poplar Grove, Tezli, Punchaw Lake, Anahim Lake (?)</td>
<td>Leaf-shaped points, corner-notched points, excuvate concave based points, stemmed leaf-shaped points, heavy unifaces, microblades and microblade cores</td>
</tr>
</tbody>
</table>

### 2.4 Archaeological Data Utility for Model

The archaeological record of a region can suggest some important trends with relevance for modeling. First, the Early period reflects subsistence patterns substantially different from those later in time with emphasis on land mammal hunting and a less sedentary lifestyle. Changes in landforms and climate have occurred through time, often obscuring landscape features potentially attractive to early settlement. Some mapping of glacial features such as drumlins, glacial lakes, etc. has been done at 1:250,000 scale. Therefore, the information is not readily adaptable to 1:20,000 scale maps. As a result, it is not possible to model this particular period based on available information. The Middle and Late periods are much better represented in the archaeological record and because of
more sedentary settlement, sites tend to be more visible. Patterns similar to the early contact period developed during this time allowing for greater accuracy in modeling. However, caution must be taken in applying the known ethnographic settlement pattern to the distant past.

In general, it is clear that more of the landscape was used over time because of changing climate and resource use patterns and therefore zones of potential must be more frequent and broader than those merely suggested by the ethnographic record.

### 2.5 Previous Archaeology

The region has seen several intensive survey projects. The first set of projects was undertaken in the Eagle Lake-Chilko River-Potato Mountain area (Alexander 1987; Magne and Matson 1982, 1984; Matson et al. 1979, 1980) and the Taseko Lakes region (Magne 1984, 1985a, b, c). A second major series of studies was conducted near the confluence of the Fraser and Chilcotin rivers (Bumard-Hogarth 1983; Ham 1975; Keddie 1972; Matson and Ham 1973; Mohs 1972; Sneed 1970), while Mitchell (1964, 1968) archaeologically surveyed regions of the Chilcotin Plateau and Bella Coola Valley. Recently, several forest industry related studies have been conducted in the general region west of the Fraser River (Hewer 1996a, b; Middleton 1995; Ridington and Brand 1996; Wilson 1993a, b, 1994a, c) and a number east of the Fraser River (Arcas 1995, 1996; Hewer 1995a, b, 1996a; Howe 1994; Howe and Brand 1995; Merchant and Rousseau 1993; Merchant 1995; Spafford et al. 1995a, b; Twohig et al. 1997; Weinberger 1998; Weinberger and Wilson 1998a, b, c; Wilson 1995; Wilson and Smart 1994). From a broad landscape perspective, results from most of these surveys seem consistent in their relative low return of archaeological sites, sites that were identified were consistent in their association with water sources, primarily lakes, creeks, rivers or marshes. Any speculation about site density and distribution remains inconclusive (Wilson and Bouchard 1993).

Archaeological overviews of the Alkali Lake area (Mason 1995; Stryd 1994), the Cariboo Forest Region (Bussey and Alexander 1992), Bald Mountain (Wilson and Bouchard 1993)
and traditional use studies (Alexander 1992: Tyhurst 1992) have also focused on the general project area.

In the general region, most sites tend to be small, reflecting a highly mobile population of small group size. Larger sites tend to be associated with lakes, marshes or major rivers. Sites are commonly associated with heads and outlets of lakes, near game crossings and in the Montane Parkland ecozone within 250 m of present water bodies. The Montane Parkland is a transition zone of open forest between 1,500 to 2,100 m above sea level.

Site types commonly recorded in the study region are house pit sites, cache pit sites, combinations of house pits and cache pits and lithic scatters. The first three of these are easily recognizable; whereas lithic scatters of stone tools are more difficult to detect especially when they are wholly or partially buried.

2.6 Site Types

Site types commonly recorded in the study region are house pit/habitation sites, subsistence feature sites, lithic scatters, combinations of house pits and/or subsistence features and/or lithic scatters, culturally modified trees (CMTs), trails 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.

2.6.1 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. In the interior, this site type most typically is characterized by large, circular depressions or house pits. Pithouses were semi-subterranean winter dwellings traditionally but not exclusively used by interior peoples.

Other than fresh water, habitation site locations typically were selected based on the availability of the following criteria: trees for fuel, shelter and construction; local food resources: access to trade routes and transportation; and suitable dry, level ground for
camps (Tyhurst 1992:378-381 in Alexander 1996:17). Sheltered locations with appropriate ground for digging were also factors in choosing habitation locations.

The circular semi-subtenanean pithouses typically used by the Shuswap during the winter varied in size according to the number of people being housed. Estimates range from 15-100 people per house with resulting depression sizes of between 3.7 to 21.3 m in diameter and 1.2 to 1.8 m deep (Kennedy and Bouchard 1987; Teit 1900 in Alexander 1996:17). Pithouses, depending on size, could have one central hearth or a hearth for each family. Entrance was either through a ladder leading out through the roof or sometimes a side entrance. Circular mat lodges, sometimes insulated with earth, were also sometimes used by the Shuswap.

For winter houses, the Carrier and Chilcotin more often used square dwellings made of poles and covered with bark, poles, branches or earth (Teit 1909:775-6; Lane 1953:144-6 in Alexander 1996: 18).

Habitation sites are important for the study of past lifeways and generally have high heritage significance, particularly for ethnographically documented villages. Because of their nature as habitation locales, these sites frequently have more than one functional descriptor since cache pits, CMTs, lithic scatters, human burials and rock art are often present. FcRh 4 on Little Horsefly River at Little Horsefly Lake, a multi-component habitation site with house pits, cache pits and a lithic scatter is an example of this site type.

2.6.2 Lithic Scatters

Lithic scatter sites can be classed under “resource procurement/extraction sites,” a more general site description where specialized activities such as the procurement and/or processing of food or raw materials occurred. 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 lithic and/or 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. FbRi 1 and 2, both located on raised terraces above a creek feeding into Starlike Lake are examples of lithic scatter sites.

2.6.3 Subsistence Features

Subsistence features here are defined as cache pits, roasting pits or fish weirs. Like habitation sites, cache pits (subterranean storage pits) and roasting pits are often found in the vicinity of a water source and are often a component of larger, multi-function sites. Fish weirs are found in association with water and fishing locales. Subsistence features, however, can by definition be found anywhere a temporary hunting or fishing camp may have been set up, often in locations away from principal habitation sites. FcRi 12 on Cariboo Island, Quesnel Lake (three cache pits), FbRi 4 on the shore of Starlike Lake (roasting pit) and FcRi 7 on Little Horsefly River (fish weir) are all examples of sites with subsistence features.

Roasting pits are most often located near water and digging grounds, and away from dwellings. Cache pits were used near villages and resource procurement sites, such as fishing locations.

2.6.4 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. Trees evidencing “non-traditional” aboriginal modification such as commercial logging by aboriginals using chainsaws are generally
excluded from this category. 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 trees with evidence of aboriginal modification be recorded as archaeological sites. Throughout the province, stripped cedar trees are among the most common of CMT types, although in the interior, stripping of lodgepole pine trees and birch trees are more prevalent.

2.6.5 Rock Art Sites

Rock art sites within the Fraser Plateau region can 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. EkRo 53 is near the confluence of the Fraser and Chilcotin rivers and is a pictograph site depicting a wide variety of animals important in the Native economy. EkRo 118 is a petroglyph site near the confluence of Ward Creek and the Fraser River. The design is geometric rather than anthropomorphic.

2.6.6 Petroforms

Petroforms are culturally produced rock or stone alignments, markers or structures such as cairns or fish weirs. Petroforms are frequently functional in nature, such as fish weirs, dams and canoe skids, but can be associated with human burials, such as cairns. Fish weirs, included in the subsistence feature site type, have been discussed above. FbRf8, located on the southwest shore of McKinley Lake, includes a described “rock feature” consisting of a pile of stones or cairn.
2.6.7 Human Burials

This category includes sites which contain material remains and features associated with prehistoric mortuary practices. Interments in the historic period can be reported in association with recorded archaeological sites, although no examples are known from the study area. Information about historic cemeteries or individual or family interments can often be acquired through documentary research and consultation with local residents.

Shuswap burials were located nearby the winter villages, with many burials in a single location. Burials could be marked with poles bearing some of the person’s belongings, a pile of rocks, a hut, or some other marker (Teit 1909:592 in Alexander 1996:46).

Chilcotin dead were buried where the death took place (Teit 1909:788 in Alexander 1996:46) and before missionary influence, bodies were cremated and buried. The burial was sometimes covered with a stone cairn (Lane 1953:61-2 in Alexander 1996:46). With missionary influence, cremation was abandoned and earth burial became the norm. Some graves were covered or marked and the property of the person was buried with them or placed on top of the grave (Teit 1909:788 in Alexander 1996:46).

Carrier dead were usually cremated and buried near large lakes (Morice 1906:10 in Alexander 1996:47).

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 the generally low level of archaeological testing at sites in the present study area. FaRm 9 is an historical cemetery associated with the Catholic Mission in Williams Lake whereas FaRm 10 is a prehistoric burial associated with a house pit, also found within Williams Lake.
2.6.8 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. Because of their ambiguous nature, trails are rarely identified as archaeological sites, but instead are noted as historic and/or traditional land use features. 

FdRj 2, the Cedar Creek trail, located south of Cedar Creek just east of Quesnel Lake at Likely is an example of this site type.

2.6.9 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 and agriculture, as well as ranching activities and small scale hunting and fishing. 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.

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.
3. Methodology

3.1 Introduction

This archaeological overview was conducted in two distinct phases.

Phase 1 involved data acquisition or the compilation of all available background information pertinent to the archaeology of the region. The following tasks were undertaken during Phase 1:

- Collection of all:
  - 1:50,000 NTS maps,
  - 1:50,000 NTS maps with plotted archaeological sites.
  - 1:20,000 TRIM maps,
  - Biogeoclimatic unit maps,
  - Forest cover/wildlife habitat maps,
  - CHIN site records,
  - Archaeological site maps; and
  - First Nations Community information regarding archaeology.

- Completion of:
  - Cross checking of site forms and maps.
  - Cross checking site locations (maps vs. forms),
  - Site form omissions check,
  - Overlays of past study locations and survey intensities,
  - Study area boundary identification; and
  - Archaeological permit and non-permit report review and bibliography.

To assist in plotting archaeological sites onto the TRIM maps, a 1:50,000 NTS map and its associated CHIN/site form booklet were acquired. The 1:20,000 key map was used to determine which TRIM maps were included on the 1:50,000 NTS maps. Sites on 1:50,000 NTS maps were examined and checked against the CHIN/site form booklet to record site dimensions, location, reliability of information, the site recorder and to identify potential problems in data.
If an axis of the site measured in excess of 100 m, the site was plotted as a polygon. If the site was smaller than 100 m, it was plotted as a point. Location was checked for problems regarding plotting on the 150,000 map, longitude and latitude, site maps and description of location. Based on this information, the reliability of plotting was evaluated. It was determined whether the location was consistent and could be correctly plotted with confidence or whether there was some doubt regarding site placement accuracy. Reliability was based on completeness of the site form and the quality of the information provided. Finally, the site form recorder was identified as either an archaeologist or a local informant. Based on this information, the site was plotted on the 1:20,000 TRIM maps and the database form was completed.

Information quality of past archaeological site records is uneven and efforts were made to standardize site data information as much as possible. Where fields such as elevation, distance to water and so on were not available from the site record, these gaps were completed by examining the locations of recorded sites on topographic map sheets and tilling in necessary fields. Any corrections made to Provincial records were provided to the Archaeology Branch so that their records could be updated.

There were some slight discrepancies between the CHIN database information and individual site forms/maps copied from the Archaeology Branch. These were noted and brought to the attention of the Archaeology Branch, but some information ultimately could not be obtained. Specifically, a number of older site forms (from the 1960s, 1970s and early 1980s) either lacked maps or had poor site maps.

**Phase 2** used data collected in the first phase to design both a scientifically acceptable numerical index of archaeological potential as well as a meaningful and practical study that can be useful in future planning. The aim of the analysis was to develop a flexible model tied to specific variables so that new information can be systematically incorporated in the model to refine the parameters of the archaeological potential index. It is important to clearly define these indices and how they were derived. This is
accomplished by explicit reference to variables important in site location. In all cases, indices are fully described.

Although models are useful in planning, the development of potential models is not a substitute for archaeological field investigation or consultation with the First Nation community. Some sites occur outside of predicted areas and the predictive power of models in areas which lack survey data may be weak. Model development needs to take this into account and the accuracy of predictions is addressed. The study utilized the methods described below.

Three major factors formed the focus of initial model development: 1) known site locations, 2) ethnographic information; and 3) previous land-use models. Site attributes were quantified as fully as possible from existing site records. Ethnographic data and a community information program were reviewed with a focus on identifying variables important in site placement. Finally, all previous overview studies conducted in the region were reviewed.

3.2 Informant Program/Site Record Analysis

All archaeological site records for the project area were examined for site constituent information. This information was used to develop a standardized list of known site types in the region. A First Nation informant program added information about additional reported sites. The goal of this step in model development was to complete a detailed and comprehensive list of site types and potential site types for the project area.

Information regarding archaeological resource locales within the study area was collected within each of the four communities. The objective of this data gathering was to compile information regarding specific locations of archaeological resources known to community members but not presently in provincial records.

Information collected was intended to be general and all encompassing in nature and collection strategies were not affected by preconceptions of archaeological potential.
First Nation informants were invited to identify all archaeological sites they were aware of regardless of type or location. Though many reported sites were in areas of clearly high archaeological potential such as major water bodies, information about other landscape areas was also gathered allowing more confidence in identification of landscape features relevant to archaeological potential.

### 3.3 Site Location Analysis

Site placement factors for each site type were determined. A large number of geographical, biological, historical and cultural factors can affect site placement. These factors were divided into two broad categories including physical (those factors of the physical environment conducive to site placement) and cultural (those factors of the cultural environment and landscape which influence the placement of sites). Variables included landform, slope, distance from water (broken down into type of water body and including both present and past features), vegetation and resource abundance (divided into proximity to resources known or suspected to be of importance to First Nations including faunal, floral and mineral resources). Cultural factors are more complex and less amenable to direct observation. Cultural factors include trails, travel routes and spiritual/mythological places, among others. These data were collected in the community data collection aspect of Phase 1 studies.

### 3.4 Model Development

Development of an archaeological potential model initially was planned to involve the integration of geographic units and archaeological types. A model was to be developed for the probability of occurrence of each major site type within each geographic unit. However, it was found that past site research was frequently ambiguous in terms of assigning site function which could lead to serious errors and therefore the model was developed to include all archaeological sites. This approach simplified model development and also has the advantage of being easier to interpret by a lay reader.

This model used clearly defined standards for the plotting of archaeological potential. The use of clearly defined empirical standards for archaeological potential modelling has several advantages:
Assessments can be scrutinized and replicated,
- Models are easily updated with new data; and
- A model can be applied to adjacent areas with a minimum of revision.

3.5 GIS Development and Integration

35.1 Integration of First Nation Information

All First Nation data were plotted on 1:50,000 NTS maps during Phase 1. These data were organized and separated into point and polygon layers using similar criteria to recorded archaeological sites. Systematic descriptive fields for this information were developed. Each polygon and point includes information on the type of data, source and spatial accuracy. This information was generally considered as reported archaeological site location data.

Information recorded for this study was limited to that pertaining directly to archaeology. This focus on archaeological information was intended to avoid infringement on separate traditional use studies underway or recently completed within these communities. Information was collected using a contact person from I. R. Wilson Consultants Ltd. to provide guidance in what information was being sought and to provide logistical support. Within each of the communities, knowledgeable individuals elicited the information from the community. Site information was recorded and locations plotted on 1:50,000 NTS maps for the community identified archaeological resources. Once collected, the locations and site information were reexamined and assigned a level of confidence based on the information collected regarding the site and any indication made by the collector or the community member supplying the information on how accurately the location could be plotted on the available maps. This varying level of confidence in location is due to numerous factors including time since the site was last visited, whether the site had been visited in person by the informant and potential difficulty relating “real-time” location to a topographic map of the location. Also at this stage a review of the site information was made to eliminate the plotting of locations considered to be traditional use sites as opposed to archaeological sites.
The community information gathered for the project was digitized and placed on separate layers. This method of using separate layers allows maps (paper or digital) to be produced with or without the community information. These community-identified archaeological sites were not buffered as this would require the buffer’s inclusion in all maps generated from the model. As well, keeping the community sites as simple points or polygons allows their management to be assessed on an individual basis in consultation with the relevant First Nation. This allows for assessment of the location accuracy and discussion of management options with the assistance of community knowledge.

Information recorded for this study focused on data directly pertaining to archaeological site locations or potential locations since the model is solely archaeological in nature. Information relevant to the present study but which the community considered to be of a sensitive or confidential nature was dealt with on a case by case basis. All information from the interviews is being kept in strict confidence and any identification of specific sites is made only with explicit First Nation approval.

3.5.2 Plotting of CHIN Information at 1:20,000

All recorded archaeological sites in the study area were examined and 1:50,000 NTS locations were noted. Additionally, Archaeology Branch digital site location files plotted at 1:250,000 scale were collected. Site locations were accurately plotted on 1:20,000 TRIM maps. In order to accurately plot sites at 1:20,000 scale, original site records, NTS 1:50,000 maps and Archaeology Branch digital tiles were analyzed. Some site information is based on questionable recording and a field for spatial accuracy was added. Access Database information was translated into PC Arc/Info and compared with site locations.
3.53 Plotting of Survey Data

The extent of previous survey coverage was plotted on NTS 1:50,000 maps. This information was digitized at 1:20,000. Fields relating to the intensity of survey, date of survey, methods, permit number and surveyor were incorporated. This step was necessary to provide ratings of proximity to known sites where a lack of survey would affect rankings of the variable. For example, an absence of sites may merely reflect an absence of survey and this was factored into the model.

Data gaps in the literature search undoubtedly exist. Although all references in the Archaeology Branch bibliography were reviewed, the list is current only to 1995 and non-permit reports or other related documents are not systematically entered after 1988. Reports still in progress or not yet reviewed by the Archaeology Branch could not be included in the review.

3.5.4 Translation and Incorporation of Digital Information

All available digital files, TRIM maps, forest cover maps, biogeoclimatic and habitat maps were translated to PC-Arc Info format where possible. In some cases datums needed to be converted.

3.5.5 Archaeological Potential Rating System

Archaeological resource potential was assessed on the basis of known and reported site location. Five variables including proximity to known archaeological sites and a number of geographical and environmental factors were chosen based on a proven and/or perceived influence on archaeological resource potential. These variables are:

1) Proximity to known archaeological/ethnographic sites,
2) Place names/ethnographic significance,
3) Proximity to water sources,
4) Slope; and
5) Topography.
Before assigning values to each of the variables, existing site location data were analyzed with specific reference to the above variables. For example, the percentage of known archaeological sites in the study area that occur adjacent to or in the vicinity of bodies of water was determined. This category was analyzed by determining the association of known sites with different types of water bodies such as rivers, lakes, ponds, marshes and so on to determine the relative frequency of sites associated with different water bodies. Analysis was undertaken to determine whether different site types have different associations. Once percentages were calculated based on known archaeological site distribution, values were assigned to the rating system.

It must be noted, however, that the known archaeological record has been influenced by the apparent skewing of survey and site recording towards areas of generally moderate to high archaeological potential. This skewing occurred most notably during the 1960s, 1970s and early 1980s, 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 potential areas has led to an archaeological record in the project area that tends to be overrepresented by large complex sites.

Once a preliminary set of variables thought to be important in site location was isolated, several meetings were held with other consultants working on different geographic areas of the regional model. Discussions regarding available data-sets, general site information and important variables were held so that all factors were recognized by all consultants working on the regional model.

3.56 Variable Evaluation and Rating

1) Proximity to known archaeological/ethnographic sites

Proximity to previously recorded archaeological sites is an important variable in rating potential. Site presence is indicative of a high potential area, whereas an absence of sites may simply be indicative of a lack of previous survey. Known sites were divided into “complex site types” (habitation, burial and multi-component sites) and “simple site types”
(CMTs, small lithic scatters, isolated cache/roasting pits, single component sites, etc.). Areas in proximity to complex sites received higher ranking than areas in proximity to simple sites. Areas in proximity to site clusters received higher ranking than areas in proximity to single sites. Values based on proximity to recorded or reported archaeological sites were assigned and entered into the database to construct polygons. For example, areas 1 m - 50 m from clusters of recorded sites were assigned the highest value. Values decrease as distance from sites increases. A simple site absence will not receive the lowest value if no surveys have been conducted in the area. Lowest values were reserved for areas with intensive previous archaeological survey and an absence of sites.

2) **Place names/ethnographic significance**

Areas with place names or reported ethnographic significance were addressed in a similar manner to archaeological sites. The presence of an area with known ethnographic significance with implications for possible archaeological site presence was then assigned an appropriate value.

3) **Proximity to water sources**

Archaeological sites are frequently found in association with bodies of water or water sources. Site records were analyzed as to recorded distance from water bodies including rivers, lakes, ponds, marshes, secondary drainages and seasonal drainages. Stream and lake classifications were used to define water body type. Depending on existing data, values were assigned to areas based on incremental increases in distance from different types of water body similar to methods described for known sites.

A number of data sets pertaining to water sources were examined for the model including fish productivity (FIS) and watershed atlas data. During the initial analysis it was found the fish data had serious gaps and could not be easily modified for archaeological use. It was found that while salmon
potential was a good predictor of site occurrence, site occurrence could be predicted equally well with the use of double line TRIM rivers. This data set, although simple, appears to have the same level of resolution as the fish data. The fish data were further limited by being pertinent to only present and not past fish populations. Watershed atlas data could not be immediately applied to the TRIM data and the steps required to apply it were not deemed cost effective. It appears that the potential of streams can be effectively modeled using the readily available TRIM data supplemented by slope information from the digital elevation model (DEM). This approach has the advantages of being fast, cost effective, and not reliant on complex judgemental decisions by the modeler. Additionally, many prehistoric activities took place in the project area near potential non-fish bearing water courses. These activities included temporary habitation, hunting, procurement of plant resources, travel and procurement of lithic resources.

Wildlife data were examined and found to be too focused on present day distribution to be of use in predicting past wildlife patterns.

4) Slope
Known sites were analyzed in terms of slope by plotting known sites at 1:20,000 scale and recording degree of slope. A sliding scale of potential value was then assigned to landforms with different slope depending on correlation with known sites.

Slopes were divided in 15% increments. It was found that the majority of sites (63%) occur on 0-14% slopes. Twenty percent of sites occur on 15-29% slopes, 8% on slopes less between 30-44% and 4% on slopes 45-59%. Few sites occur on steeper slopes with only 5% on slopes greater than 59%. These latter sites present a problem in that they are reported from slopes which are usually considered too steep to contain archaeological sites.
To examine this issue, the site records for the twelve sites with habitation components (features thought to be associated with gentle slopes) were examined. Many of these records were too incomplete to yield useful information. Several of these sites are recorded on small terraces near the Fraser River and often immediately adjacent to smaller drainages. For example, FaRn 24 is located on a terrace 4 m above Pablo Creek and 150 m from the Fraser. Site boundaries were also noted to extend from flat terraces to the edge of steep slopes. This could easily result in the site being plotted on the slope rather than the flat. One site (FaRn 41) notes that materials are eroding from a steep bank. Therefore, though the site was on level ground when occupied, subsequent erosion has exposed deposits in currently steep terrain.

Records of nine sites with cache pits but lacking house pits apparently situated on steep terrain were also examined. Where detailed data were available, errors in plotting were similar to the house pit sites. ElRn 19, FaRn 17 and FaRn 34 are located at terrace edges. FaRn 13 is located at the edge of a terrace above the Fraser and a secondary drainage.

Records of nine lithic scatters not associated with cache pits or house pits were also examined. These data were found to be similar to cache pit and house pit data with some exceptions. FaRn 38 is an isolated late period projectile point recorded on a steep slope and EkRf 6 is a quarry site. Both these site types can be expected to occur on any grade of slope.

In general it is thought that slope can be effectively used to model archaeological site occurrence if certain modifications are made. A number of site types can be expected to occur regardless of slope such as isolated artifacts and roasting pits while some such as rock art are often positively
correlated with steep slope given that many pictographs are found on vertical rock faces.

5) **Topography**

Known sites were analyzed by identifying their association with topographic features such as terraces, knolls, gullies or other terrain features. Those features which have high correlation with known site presence received the highest ratings.

It is important to note that not all the above variables have equal weight in determining archaeological potential and the relative importance of each variable was determined by analysis of correlations with known sites. Different weights were assigned variables so that appropriate potential could be determined.

Through this analysis, it was determined that two line rivers and lakes have the strongest positive correlation both with known site locations and concurrence with the ethnographic record. It was determined that slope alone was not useful in determining potential but was useful in modifying potential and was valued accordingly.

4. Results

4. I **Introduction**

A great deal of data has been collected concerning the study area including community information from First Nations, historical and ethnographic information about trails, archaeological site information, biological, geological, hydrological and geographic data. However, it is apparent that important information gaps remain. Many data sets, particularly archaeological, ethnographic and ethno-historical information about areas removed from major drainages are unavailable. A variety of strategies were used to address these data gaps.
Collected data include information concerning 767 archaeological sites within the study area and approximately 400 additional sites from the study area vicinity. Detailed information on site attributes derived from site records and reports, detailed information about factors in the physical environment associated with known archaeological sites and information from both historical and ethnographical sources about site placement was collected and quantified.

A model of archaeological potential was developed from these data. Four categories of potential were employed in the final model. Zones of archaeological potential identified in the model encompass 99% of the known archaeological sites within the study area. The model captures 84% of the recorded archaeological sites in a narrow class 4 (high) potential buffer around key features. A wider class 3 (high-moderate) buffer captures an additional 8% of the known sites, while a comparatively wide class 2 buffer (moderate) captures an additional 2% of recorded sites. Less than 5% of known sites fall into the class 1 (low) area which encompasses the remainder of the project area and cannot be effectively modeled with current data and archaeological knowledge. It should be noted that while the majority of known sites is recorded within zones of potential, some sites do fall outside of potential zones. Sites falling outside potential zones were then re-examined to determine possible factors which may have been overlooked in the model. It is emphasized that only a small portion of the study area has been systematically surveyed and likely the majority of archaeological sites within the project area are not yet recorded.

It should be noted that the model has been balanced between including the maximum number of sites within zones of potential and creating zones of differing site density. As a result, some sites in unusual locations have been excluded. In some cases these locations may be a result of map errors on site form data. In other cases the locations may be a result of factors that cannot be addressed through this broad based model. When large-scale computer based models are applied, results are necessarily general. It is thought that this can be addressed through community information and First Nation consultation.
Most recent survey work within the project area has been heavily influenced by the forest industry. The result again is an apparent skewing of survey and site recording within areas of “good” timber, frequently at forested lower elevations in proximity to water sources. However, the archaeological database should broaden as more forestry related survey is undertaken in the project area. The percentage of smaller, less complex sites such as CMTs, resource procurement and small lithic scatters that represent specialized activities will likely become better represented. For now, the general lack of survey in high elevation areas continues to represent a gap in the data used for this overview.

A series of paper maps were produced modeling archaeological potential for the study area based on 1:20,000 information. These maps allow resource managers to easily assess the archaeological potential of proposed developments. This mapped potential when combined with a program of First Nation consultation allows for effective resource planning.

Site types identified by the communities included almost all those presently represented on provincial records for the study area. Total number of point or polygon community based archaeological site points plotted are summarized below. At the time of AOA completion the Soda Creek First Nation did not wish to have their community based archaeological information included. The data is in digital format as generated by the Soda Creek First Nation.

Studies conducted with the Williams Lake First Nation identified 75 locations identified as either possible archaeological sites or trails. Of these, 48 could be accurately plotted.

Studies conducted with the Canoe Creek First Nation identified 72 locations identified as either possible archaeological sites or trails. Of these, 46 could be accurately plotted.

Studies conducted with the Canim Lake First Nation identified 77 locations identified as either possible archaeological sites or trails. All were plotted.
4.2 Trail Information

A network of Native trails crosscut the study area. These routes were an important means for travel and trade throughout the Cariboo and surrounding regions, connecting important trade and/or salmon fishing centers, villages, camps and procurement areas. As well, these trails served as significant travel/trade corridors linking the interior peoples with those who resided in the coastal regions to the west. Most of the trails described in the literature are major trails that traversed more than one band territory. The many minor trails that ran through every band territory in the study area are not described in the literature. Many of the major Native trails were later utilized by fur traders, prospectors, and ranchers, with some being expanded to accommodate wagon traffic. Eventually some of these trails became roadways (Alexander 1997: C-I).

The following is a summary of the major trails that ran through the study area (Alexander 1997).

Tzenzaicut Lake to Fort Alexandria: In 1920, W.C. Merton (surveyor) notes: “Running down South Creek [Baker Creek] is an old Indian trail. This trail follows South Creek [Baker Creek] to its headwaters; then crosses a low divide [at Lot 9166] to the headwaters of Narcosli Creek and runs on to Alexandria” (B.C. Department of Lands 1929: 132, see also page 153). In 1921, he notes: “A good trail follows Mertson Creek to Tzenzaicut Lake; thence along the northern shore of the lake and continues on to Narcosli Creek, where it joins the Fraser River Wagon-road at McComb’s place (Lot 9529). This trail was followed from the east end of the lake to Alexandria...” (B.C. Department of Lands 1929: 153).

Puntzi Lake to Fort Alexandria: Palmer (1863: map) included this trail as part of his route from the coast to Fort Alexandria (see also Tyhurst n.d.: 193; Fumiss 1993a:45). G. Jorgensen (1892: surveyor General Branch, 3T1) mapped a branch of this trail that Led to Quesnel. An “old Hudson Bay trail” ran from Narcosli Creek to Alexis Creek, joining the Upper Chilcotin to Alexandria (B.C. Department of Lands 1929: 119). Trails were cut between Fort Alexandria and the Chilcotin by the fur trade companies, primarily for the winter (Morton 1992: 81). Anderson’s 1867 map
(Surveyor General Branch, 3 Locker I) also shows the route from Fort Chilcoten to Fort Alexandria.

**Chilanko River to Soda Creek:** This trail goes south from the Fraser River to Riske Creek, follows the north bank of the Chilcotin River to the Chilanko River where it crosses the river and follows the north bank of the Chilanko River (Dawson 1877: 234-37). Poudrier (1891a) extended this trail to Quesnel. G. Jorgensen (1892: Surveyor General Branch, 37T1) also provided a map of this trail.

**Kanceville to Bridge River:** Tyhurst (n.d.: 193) notes a series of trails in the Big Creek drainage linking the Chilcotin River to Chilko Lake and Bridge River. Lane describes some of the same trails: “One leads from Taseko Lake, to the southeast down onto the Bridge River. Another passes from the headwaters of Big Creek to the Bridge River. A third leaves the Plateau and passes down the Yalakom River, which eventually joins the Bridge River not far from the Fraser. In addition there are numerous trails joining the main north-south trails, and there are various alternate entrances to the mountains.”

**Fort Alexandria to Little Fort (55 miles [88.5 km] above Kamloops, on North Thompson):** This trail is part of the Hudson’s Bay Company Brigade Trail, and use by the fur traders began as early as 1813. It is highly likely that this trail followed an old Native trail. Use of this trail declined after 1842 when a new fur trade trail was placed along the north side of Kamloops Lake, and then north through Deadman’s Creek (Forsman 1995:1-3; Morton 1992: 137). Up to 300 horses were used by the HBC on this route. One branch ran into the north side of the North Thompson River to Eakin, Lac des Roche Bridge Lake and Horse Lake, to the Fraser (Morton 1992: 80). Patenaude (1995: xiii) mapped a branch of this trail that goes to Clinton. The trail is also recorded on Anderson 1867 map (Surveyor General Branch, 3 Locker I).

**Canim Lake to the Thompson River:** This trail is also known as the Old Clearwater Trail. In 1912, A.J. Campbell (surveyor) notes that this trail, “after following down the valley of Spanish Creek, crosses Deception [Creek] about a mile [1.6 km] south of the 52nd base-line, then runs in a south-westerly direction to Marten Creek [Hendrix Creek], crossing that about 4 miles [6.4 km] below the line. It still follows the same direction, crosses Boss Creek, and comes out on Canim Lake at the mouth of Canim Creek [Eagle Creek]. From there it follows the near shore until it joins the
Canim Lake Wagonroad. A branch from this about two miles [3.2 km] east of Marten Creek [Hendrix Creek] runs south to the east end of Canim Lake. There is also a good trail along the south side of Canim Lake” (B.C. Department of Lands 1929: 44).

Cariboo Wagon Road: This road was cut in the 1860s to service gold miners at Barkerville. It ran from Pavilion to Clinton and Lac la Hache, and then north to Soda Creek, Quesnel and Barkerville. The route has been plotted by many including G. Jorgensen (1892: Surveyor General Branch, 37T1); Harper (1974: 13); Downs (1973: map); Patenaude (1995: xii); Forsman (1995); and Poudrier (1891a). Anderson’s 1867 map (Surveyor General Branch, 3 Locker I) also included a trail from Pavilion along the Fraser River to Quesnel.

Cariboo Wagon Road to the Fraser River: A series of trails ran from the wagon road to Alkali Lake, Canoe Creek and Dog Creek. These trails were plotted by G. Jorgensen (1892: Surveyor General Branch, 37T1); Patenaude (1995: xii); Anderson (Surveyor General Branch, 20T3). Trails near Williams Lake were also plotted on a map (Surveyor General Branch, 5T2). Portions of these routes may not have existed prior to contact.

Lacl la Hache to Quesnel Lake: G. Jorgensen (1892 Surveyor General Branch, 37T1) provided a map of this trail. J. Tumbull (1860: Surveyor General Branch 20T3) also plotted the start of the trail. The northern section of this trail followed waterways; the southern section was overland.

Williams Lake to Quesnel Forks: This trail, which was used as an early route to the Cariboo gold fields, was mapped by G. Jorgensen (1892 Surveyor General Branch, 37T1), Harper (1974:13); Downs (1973: map), and Anderson (Surveyor General Branch, 3 Locker I). This route may not have existed prior to contact.

Quesnel Forks to Barkerville: This trail, which was used as an early route to the Cariboo gold fields, was mapped by G. Jorgensen (1892 Surveyor General Branch, 37T1), Harper (1974:13); Downs (1973: map), and Anderson (Surveyor General Branch, 3 Locker I).

Beaver Creek to Alexandria and Soda Creek: These two trails, which were used as early routes to the Cariboo gold fields, were mapped by Harper (1974: 13), and Patenaude (1995: xiv). These routes may not have existed prior to contact.
Although each trail has sections within the study area, many of the trails are not entirely within the study area. For the most part all the trails followed set waterways, with some minor overland areas, however, the trail from Beaver Creek to Alexandria was basically overland, as was the Williams Lake to Quesnel Forks. The Cariboo Wagon Road had a number of overland sections between Pavilion and Lac la Hache where the road detoured from the Fraser to avoid sections of treacherous terrain between Pavilion and Williams Lake River.

4.3 Potential Zones

This section briefly describes potential zones including rationale for determination of buffers around cultural and natural features and the near analysis results for these buffers. Each important variable used in model creation is discussed individually.

4.3.1 Archaeological Sites

Problems with plotting and site records resulted in the elimination of a number of records from the regional database. A database of 767 sites in and adjacent to the study area was used in the model.

1) 250 m around sites defined as points defines the high potential buffer (subtract areas with slopes greater than 60%)
2) 250-500 m from sites defined as points defines the medium potential buffer (subtract areas with slopes greater than 45%)
3) 500 m from sites defined as polygons further defines the high potential buffer (subtract areas with slopes greater than 45%)

The high potential buffer of 250 m around recorded sites is intended to address the possibility of unrecorded resources near the recorded site. This buffer is considered appropriate since site boundaries are often not well-established, especially for sites recorded prior to the mid 1980s. Also, CMTs associated with sites were rarely recorded before 1992 and the proposed buffer is expected to include many such features.
'The 250-500 m medium potential buffer around recorded sites addresses increased archaeological potential resulting from intensive use of an area.

A 500 m buffer is proposed around sites defined as polygons. The polygon indicates presence of a large complex site, typically a village. A village site not only has activities occurring within the village, but is expected to have activities such as resource procurement occurring nearby. Thus the potential for trails, small lithic scatters and isolated artifacts is higher near a village. The use of a different buffer for small and large sites is intended to address sites which have a higher intensity of use such as large villages and sites which may have large dispersed resource clusters such as CMTs and quarries.

Initially the model was run without subtracting slope. On examination of the check plots it was found that a number of steep areas near sites were plotted as having very high archaeological potential. As a result, a decision was made to subtract steep slopes while leaving flat and more gradual slopes within the buffer. This resulted in 16 sites plotted on slopes greater than 60% being eliminated from the 250 m buffer around known sites and nine sites eliminated from the 250-500 m buffer.

Two hundred and fifty one sites are captured within the 250 m buffer around known sites. Site density is high within the 250 m buffer and actually increases at 250 m. The 250-500 m buffer from known sites captures an additional 150 sites with a general decrease in site density over distance. Expanding the buffer to 1 km would result in an additional 124 sites being captured in decreasing numbers with distance. The majority of these sites are captured by other buffers and thus an expansion of buffers around known sites is not necessary. However, it should be noted that the presence of sites raises site potential over a wide geographic area.

4.3.2 Rivers and Streams

A decision was made to use TRIM water as opposed to mapping fish potential or stream gradient. Present fish distribution was examined and found to be difficult to use and
possibly not a good predictor of past fish potential. It was thought that human activities over the past 150 years and climatic changes over the 10,000 years have substantially changed the fish potential of river systems. It was found that the TRIM data was of adequate accuracy and easily accessible. An attempt was made to assign some level of archaeological potential to all non-steep water courses. This takes into account many past hydrologic features.

4.3.2.1 Two line rivers

1) 0-100 m from two line rivers defines high potential (do not subtract slope)
2) 100-500 m from two line rivers defines high potential (subtract areas with slopes greater than 45%)
3) 100-500 m from two line rivers defines moderate potential (areas with slopes between 45% and 60%)
4) 500-1000 m from two line rivers defines high-moderate potential (subtract areas with slopes greater than 45%)
5) 1000-1500 m from two line rivers defines moderate potential (subtract areas with slopes greater than 30%)

The 100 m buffer from two line rivers regardless of slope addresses resources dependent on proximity to rivers but not affected by slope such as fishing stations and rock art. This buffer includes small terraces which are not mapped on 1:20,000 maps (including partially eroded terraces). The two 100-500 m buffers from two line rivers excluding greater than 60% slope captures sites located on the first terrace along major rivers while excluding the steep slopes which often define the terrace. The 500-1000 m buffer includes sites located on second and third terraces above major river systems. Important village sites have been identified in these locations. The 1000-1500 m buffer was established to capture sites removed from but possibly still associated with large river systems. This buffer captures sites located near seasonal drainages on third terraces above major river systems.
A total of 259 sites are captured in double line river buffers. Of these, 106 sites are within the 0-100 m high potential buffer. The 100-500 m high potential buffer excluding greater than 45% slopes captures 62 sites. The 100-500 m high-moderate potential buffer (slopes between 45% and 60%) captures three additional sites. Twelve sites are from the two 100 m-500 m buffers based on slope. The 500-1000 m high-moderate potential buffer captures 44 sites and excludes eight sites based on slope greater than 45%. The 1000-1500 m moderate potential buffer captures 44 sites and excludes six sites based on slope.

4.3.2.2 Single line rivers

1) O-100 m from single line rivers defines high potential (subtract areas with slopes greater than 60%)
2) 100-250 m from single line rivers defines high-moderate potential (subtract areas with slopes greater than 45%)
3) 250-500 m from single line rivers defines moderate potential (subtract slopes greater than 30%)

A total of 502 sites are captured in single line river buffers, double the number than for double line river buffers. This is likely due in part in the abundance of this size of river in the study area compared to double line rivers. Many of these sites are also captured in double line river buffers. The O-100 m buffer captures 262 sites with 13 sites excluded based on slope. One hundred thirty-six sites are captured in the 100-250 m buffer with ten sites excluded based on slope. The 250-500 m buffer captures 104 sites but excludes 28 sites based on slope.
4.3.2.3 Intermittent streams

1) 0-150 m from intermittent streams defines high-moderate potential (subtract areas with slopes greater than 45%)

2) 150-300 m from intermittent streams defines moderate potential (subtract slopes greater than 30%)

The buffer around intermittent streams addresses the known archaeological potential of such features as well as the possibility that such streams may have had more substantial flows in the past. Subtraction of potential zones on the basis of steep slopes limits mapping of steep areas with occasional run-off as areas of high potential.

Two hundred seventy-nine sites are captured in buffers associated with intermittent drainages. In the high-moderate potential zone, 168 sites are captured and 20 are excluded based on slope whereas in the moderate potential zone, 111 sites are captured and 41 are excluded based on slope. Given the common occurrence of intermittent streams in the study area, it is clear that intermittent streams are of lower predictive significance than double and single line rivers. However, intermittent drainages are still important in determining archaeological potential with substantial numbers of associated sites.

4.3.3 Lakes

4.3.3.1 Around lakes larger than 1000 ha

1) 0-100 m from large lakes defines high potential (do not subtract slope)

2) 100-400 m from large lakes defines high potential (subtract slopes greater than 45%)

3) 400-1000 m from large lakes defines high-moderate potential (subtract slopes greater than 45%)

4) 1000-1500 m from large lakes defines moderate potential (subtract slopes greater than 30%)
Large named lakes are known from ethnographic and archaeological information to have high archaeological potential. The O-100 m buffer is intended to capture sites immediately associated with the lake. The 100-400 m buffer and 400-1000 m buffer subtract slopes in a similar rationale as applied to the two-line river buffer while the 1000-15000 m buffer accounts for reduced potential but also accounts for activities removed from the expected core area of use.

A total of 140 sites were captured by the large lake buffers. The majority (84) of these sites were captured by the 100 m buffer. Twenty-four sites were captured in the 100-400 m buffer and one was excluded due to slope. Twenty-three sites were captured in the high-moderate buffer with one site excluded. Ten sites were captured in the moderate buffer with one excluded due to slope.

4.3.3.2 Around lakes 100-1000 ha

1) O-100 m from medium sized lakes defines high potential (do not subtract slope)
2) 100-300 m from medium sized lakes defines high potential (subtract slope greater than 45%)
3) 300-500 m from medium sized lakes defines high-moderate potential (subtract slopes greater than 45%)
4) 500-1000 m from medium sized lakes defines moderate potential (subtract slope greater than 30%)

One hundred twenty sites were captured around medium sized lakes. Given the greater number of medium sized lakes compared to large lakes, it is clear that medium sized lakes have somewhat lower importance in site prediction. Seventy-four sites are within the 100 m buffer. Nineteen sites are within the 100-300 m potential buffer. Eight sites are within the 300-500 m buffer with one site excluded due to slope. Nineteen sites are within the 500-1000 m buffer.

4.3.3.3 Around lakes 5-100 ha

1) O-50 m from small lakes defines high potential (subtract slopes greater than 60%)
2) 50-150 m from small lakes defines high-moderate potential (subtract slopes greater than 45%)

3) 150-500 m from small lakes defines moderate potential (subtract slopes greater than 30%)

Steep areas around lakes are excluded from the potential model. However, moderately sloped areas are buffered to include lakeshores, terraces and bluff tops near the lake.

In high potential areas, 25 sites are captured in the O-50 m buffer zone. In the 50-150 m high-moderate potential buffer zone, 24 sites are captured and one site is excluded based on slope. Thirty-six sites are captured in the 150-500 m moderate potential zone and five sites are excluded based on slope.

4.3.3.4 Around lakes <5 ha

1) O-150 m from very small lakes defines high-moderate potential (subtract slopes greater than 30%)

2) 150-500 m from very small lakes defines moderate potential (subtract slopes greater than 30%)

In the high-moderate potential buffer, 46 sites are captured by the model and three sites are excluded due to slope. One-hundred eighteen sites are within the moderate potential zone with 15 sites excluded on the basis of slope.

4.3.3.5 Wetlands

1) O-50 m from wetlands define high-moderate potential (do not subtract slope)

2) 50-150 m from wetlands define moderate potential (do not subtract slope)

Some thought was given to applying different buffer sizes to large and small wetlands. However, because wetlands intersect along stream systems, abnormally large wetlands would occur and would be given buffers disproportionate to their archaeological potential. As applied in the present model, buffers include the edges of marshy areas
including former lakes. Because steep slopes usually indicate the presence of knolls or terraces, slope is not subtracted from wetland areas.

Wetlands include two different types including large (>5 ha) and small (<5 ha). Large wetlands captured 47 sites in the O-50 m buffer and 35 in the 50-150 m buffer. Small wetlands captured 25 in the O-50 m buffer and 40 in the 50-150 m buffer suggesting a higher predictive importance for large wetlands. Based on site distribution, areas beyond 150 m of wetlands do not have importance in terms of site prediction.

4.3.4 TRIM Eskers

1) O-100 m from TRIM eskers defines moderate potential (subtract slopes greater than 45%)

Eskers indicate changes in landform and are of moderate archaeological significance.

Only one site was captured with the TRIM esker buffer,

4.3.5 TRIM Cliffs

1) O-100 m from TRIM cliffs defines moderate potential (subtract slope greater than 60%)

Cliffs have some potential as rockshelter locations when in the vicinity of other resource classes. There is also potential for rock art sites.

Cliffs were not modeled in the near analysis. However, buffers are considered adequate.

4.3.6 Intersections

Because the combination of variables increased archaeological potential, areas of intersecting potential were changed in terms of their final rating. For example, an area between 150-300 m from intermittent streams is considered of moderate potential. However, if the same area is also within 250-500 m of known sites, also defined as medium potential, it is then logical that potential of the specific area is raised.
Buffers around areas of intersecting potential are as follows:

1) Areas of intersecting moderate/high potential areas become high potential.

2) Areas of intersecting moderate-high/moderate potential areas become high potential.

3) Areas of intersecting moderate potential areas become high-moderate in potential.

4.3.7 Forest Cover

Use of forest cover as a predictive variable for archaeological sites has a relatively low predictive value compared with variables outlined above. However, for certain specific resource classes, particularly certain types of CMTs, use of forest cover is potentially of greater utility. However, CMT distribution in the study area is still too poorly documented to employ forest cover as a predictive variable. However, it appears that some specific forest cover data can be used to predict the potential for bark stripped cedar CMTs. Due to the limited cedar distribution in the study area, relatively few areas have potential for this resource. Lodgepole pine CMTs are more commonly present in the study area but the wider distribution of this species makes modeling of potential based on forest cover alone too broad. Whitebark pine is anecdotally associated with roasting pits. However, available data are not sufficient to test this hypothesis. Six sites have been recorded as containing roasting pits. One of these is a large ethnographic village, a second is a multi-purpose campsite and a third may represent a limited activity site although the record is too fragmentary to provide adequate data. The three remaining sites have detailed vegetation descriptions which do not mention white bark pine.

A number of theories have been developed regarding the relationship between dominant vegetation species and archaeological site placement. It is attractive to choose an easily represented variable such as vegetation type and look at its correlation with site placement. However, there are problems with this approach. For example it is apparent that a disproportionate number of archaeological sites are present in the Bunchgrass bio-geoclimatic zone. These sites are some of the largest and most archaeologically significant in the study area. However, these sites are generally located in proximity to the Fraser River and its tributaries and the focus of the sites is in large part directed to the
procurement of salmon. Thus, the important variable is seen as the watercourse rather than the biogeoclimatic zone.

4.3.8 Summary of Potential Zones

When the entire model is run, of the 767 sites accurately plotted within the study area, 648 sites (84%) fall within areas of high archaeological potential, 63 sites (8%) fall within zones of high-moderate potential, 18’ sites (2%) fall within areas of moderate potential and 38 sites (5%) fall within areas of low potential. When discrepancies in slope based on plotting and site recording are considered, the actual number of sites in low potential areas is closer to 3% of all known sites.

In terms of the geographical area encompassed by each potential zone, the following table illustrates site density in each potential zone and also shows the total surface area of each potential zone both as an absolute size and as a percentage of the entire area. It can be seen that site density is higher the higher the potential rating. Forty three per cent of the study area is considered of low potential. High potential is the second largest potential zone at 29% of the study area. However, site density in this zone is six times higher than the high-moderate zone and therefore it is assigned with some confidence. Eighty four per cent of known sites are in high potential zones, partially reflecting past survey coverage focussing on the most likely areas to contain sites.

<table>
<thead>
<tr>
<th>Potential</th>
<th>Nb. of Sites</th>
<th>% Sites</th>
<th>Size (ha)</th>
<th>% Area</th>
<th>Sites per ha</th>
<th>Sites per km</th>
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<tbody>
<tr>
<td>High</td>
<td>648</td>
<td>84</td>
<td>1,074,370.7</td>
<td>29</td>
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<tr>
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<td>38</td>
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<td>1,537,042.6</td>
<td>43</td>
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<td>Total</td>
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A summary of sites captured for each variable is presented in Appendix A.
5. Recommendations

5.1 Management Recommendations

The model produced for this overview is a model of archaeological site potential. Archaeological sites are locations on the landscape which contain physical evidence of past human activity. Such sites include a variety of resources including scatters of stone tools (lithic scatters), habitation remains (such as house depressions), and trees which have been modified through cultural processes. All archaeological sites pre-dating 1846 are protected under current heritage legislation while later sites are protected on a case by case basis. Information regarding archaeological site protection can be obtained from the Archaeology Branch of the Ministry of Tourism, Small Business and Culture.

This model is designed to solely address the physical evidence of past human activity and does not address traditional use or other concerns. Some archaeological sites may overlap with traditional use sites but these are separate resources and archaeological information and research should not be confused with traditional use studies. Similarly, traditional use studies should not be confused with archaeological studies.

These recommendations are made based on current archaeological knowledge and may be subject to revisions. Many of the areas mapped are poorly understood archaeologically and map information is based on hypothesised settlement and land-use models supplemented by small samples of site information. Much of the information on recorded sites is of poor quality and site locations and descriptions may be inaccurate. Additionally, likely only a small fraction of the sites present in the project area have been recorded.

The model developed uses four classes of archaeological potential. Class 4 or high potential areas are those areas most likely to have archaeological sites, Class 3 or high-moderate potential areas are less likely to have sites, Class 2 or moderate potential areas are less likely than Class 3 areas to have sites, and Class 1 or low potential areas are the least likely to have archaeological sites. It must be noted that archaeological sites have been found in all areas
including Class 1 areas. The following recommendations are made for the four class areas based on current archaeological knowledge.

High Potential (Class 4) Areas: These areas include areas with a proven heritage potential such as the Fraser River valley. Eighty-four percent of known archaeological sites occur in this potential zone. Projects conducted in this area can be expected to encounter archaeological sites. As a result, full archaeological impact assessments conducted under provincial permit and First Nation permit (if appropriate) are recommended for any project whose boundaries intersect this potential zone.

High-Moderate (Class 3) Areas: These areas are also of high archaeological potential although known site densities are considerably lower than high potential (Class 4) areas. Eight percent of known archaeological sites have been recorded in this potential zone. Projects in these areas are likely to encounter sites but at lower densities than in high potential (Class 4) areas. As a result, archaeological field reconnaissance conducted under provincial permit and First Nation permit (if appropriate) is recommended for any project occurring within or intersecting the boundaries of this potential zone.

Moderate Potential (Class 2) Areas: These areas are of lower archaeological potential than Class 3 and Class 4 areas although significant numbers of archaeological sites have been recorded in them. Within the project area, Class 2 areas occupy approximately three times the area of Class 3 areas and have approximately one third the number of sites. This suggests that site density in these areas may be one ninth that of Class 3 site density. However, these areas have seen relatively limited archaeological research and the range of site types recorded seems limited. Site types reported in Class 2 areas include temporary use and limited activity sites such as lithic scatters and occasionally large intensively used habitation sites. One CMT site has been recorded.

It is recommended that all projects falling within moderate potential (Class 2) areas be reviewed through map study by a qualified archaeologist in consultation with appropriate
First Nations to determine the necessity for further archaeological work. Receipt of a provincial permit allows for subsurface testing if it is considered necessary.

**Low Potential (Class 1) Areas:** These areas are considered least likely to contain archaeological sites. Less than 3% of all recorded sites in the study area are reported from Class 1 areas when slope based data discrepancies are subtracted. Known sites were not included in the model as it was run. However, all known sites are plotted and potential buffers established around each site. Thus, operationally the model will capture known sites in otherwise low potential (Class 1) areas. However, very little archaeological research has been undertaken in Class 1 areas and site density may be higher than presently documented.

It is recommended that developments in low potential (Class 1) areas be reviewed by First Nation consultation. Review should focus on the possibility of atypical resources or landforms present in the development area and also seek information concerning possible use from knowledgeable First Nation consultants. It may be appropriate in some circumstances to obtain an opinion from a professional consulting archaeologist with experience in the area. Based on this examination, recommendations for further archaeological work may arise.

**5.2 Additional Recommendations**

There are a number of additional, more general recommendations which have emerged from this project. These recommendations address the following:

1) Continued First Nations Community information gathering and incorporation into the present data set. Each community gathered considerable archaeological information during the course of the project but clearly there is potential for significantly more data to be compiled. As well, many communities which have overlap territory with the Northern Shuswap bands will also have information pertaining to unrecorded archaeological resources within the study area. Many of the sites known to the communities and not previously recorded on provincial records are significant and
not necessarily captured in high or high-moderate zones of the model. Therefore future community information gathering would continue to enhance the AOA. In this regard, communities that did not participate in the present program should continue to be consulted regarding potential archaeological site location. Increasing the location accuracy and delineating these archaeological sites would also greatly assist in their effective management.

2) Additional ground work in the form of archaeological inventory studies would augment the present database.

It is recommended that additional information collected from future community information gathering projects, archaeological inventory studies and archaeological impact assessments be incorporated into the present AOA at a regular interval. This will allow the AOA to be refined to better aid in the management of archaeological resources as our understanding of this region grows.

5.3 Incorporation of Additional Information

As noted throughout the report, the model is based on incomplete and often relatively poor information. As more archaeological field study is undertaken and as more anthropological or cultural information resulting from TUS studies and First Nation consultation is gathered, the model can be revised in the future.

As new archaeological sites are recorded, it is clear that buffers should be placed around these newly recorded sites as has been done with known sites in the present model.

As new sites are recorded, their locations in terms of potential zone can be compared with the model. For example, if ten new sites are added in the high potential zone associated with two line rivers and three new sites are added in the high-moderate potential zone of the same variable, then the model tends to be reinforced. However, if larger numbers of sites are found in lower potential zones, then the model needs revision. Similarly, if
number of sites per hectare in individual potential zones is markedly different from that identified in the present model, it is clear that revisions are necessary.

Specific variables can be examined by comparing results in Appendix A of this report identifying sites in relation to distances from lakes, for example. Again, consistency with existing data tends to confirm the model whereas large discrepancies should be taken to suggest that revisions are necessary.

It is suggested that all sites recorded perhaps every two years should be added to the database of the present model and examined for consistency.

Cultural information can be used in much the same way as new archaeological site locations. However, these data require more careful consideration in that cultural information does not always reflect archaeological potential. For example, berry picking locales are not necessary linked with archaeological evidence and are therefore not relevant to this model. However, fishing places likely do have implications for archaeological site location and could be incorporated into the model. Ideally, these locations should be archaeologically field checked before their inclusion into model revision. Of course, these data are important in determining concerns about a specific development area.

6. Implementation Guide for the Model

The goal of the overview assessment was to provide a working model of archaeological site potential within Cariboo Tribal Council traditional territory. This guide is intended to provide specific information necessary for the implementation of the model. It should be noted that this model applies only to archaeological sites and not to traditional use sites which are a separate resource class subject to different management and possibly having a different distribution then archaeological sites.

In British Columbia, archaeological sites are managed by the Provincial Government through the Archaeology Branch (Ministry of Small Business, Tourism, and Culture).
Provincial legislation (the Heritage Conservation Act) protects specific classes of archaeological sites usually referred to as protected sites. These sites include those pre-dating 1846, Provincial heritage sites, burial places with historical or archaeological value, aboriginal rock paintings or carvings and heritage wrecks. It is an offence under the Act to alter or disturb a protected archaeological site whether previously known or not. Thus it is necessary to know the location of archaeological sites prior to the conduct of forestry activities including harvesting and road construction. Archaeological overviews have been developed to aid in this process.

To implement the model, the proposed development should be overlain on the potential map. Both digital and paper copies of the potential model have been provided. The archaeological potential can then be read directly from the map. Some developments may intersect several different potential zones particularly in the case of linear developments. Specific sections of a road may require field study while other portions could cross low potential areas. It is only necessary to cover those zones requiring field investigation, but in a practical sense, some low potential zones will be examined by gaining access to higher potential zones. This allows occasional coverage of low potential zones to confirm the model. In the case of cut-blocks, the highest potential zone within the cut block should be used as a guide to the appropriate level of field work. For example, if a small portion of a cut block is within high potential, the entire cutblock should be dealt with following recommendations for this potential zone.

Development plans should also be discussed with the appropriate First Nation(s) to incorporate First Nation information.

For high and high-moderate potential areas, work must be undertaken under provincial permit. Archaeological permits are issued by the Archaeology Branch of the Ministry of Small Business, Tourism, and Culture to professional archaeologists. A list of professional archaeologists is available from the BC Association of Professional Consulting Archaeologists. First Nation Consultation is required.
Moderate potential areas require a map study which can be done by a professional archaeologist with study area experience. These studies do not require a provincial permit but should involve First Nation consultation.

Low potential areas do not require archaeological work. However, relevant First Nation(s) should be consulted about developments.
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Dewhirst, John
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<td>Fumiss, Elizabeth</td>
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<td>Dakelh kevoh-the Southern Carrier in earlier times.</td>
<td>Quesnel School District, Quesnel</td>
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<td>Glavin, Terry</td>
<td>1992</td>
<td>Nemiah, the unconquered country.</td>
<td>New Star Books, Vancouver</td>
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# Appendix A

## Number of Sites by Distance from Two Line Rivers According to Slope

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<th>15-29</th>
<th>30-44</th>
<th>45-59</th>
<th>60-74</th>
<th>75-89</th>
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<th>101</th>
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<td>1-100</td>
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<td>41</td>
<td>24</td>
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<td>17</td>
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| % Total                    | 7%  | 56%  | 19%   | 9%    | 4%    | 3%    | 1%    | 0%    | 1%   |

Buffers for Two Line Rivets (as defined in section 4.3.2.1)

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### Number of Sites by Distance from Single Line Rivers According to Slope

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**Buffers for Single Line Rivers (as defined in section 4.3.2.2)**

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## Number of Sites by Distance from Intermittent Streams According to Slope

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Buffers for Intermittent Streams (as defined in section 4.3.2.3)

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### Number of Sites by Distance from Large Lakes (>1000 ha) According to Slope

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**Buffers for Large Lakes (as defined in section 4.3.3.1)**

- **O-100 m High Potential**: 84
- **100-400 m High Potential (subtract areas with slopes greater than 45%)**: 24
- **400-1000 m High-Moderate Potential (subtract areas with slopes greater than 45%)**: 22
- **1000-1500 m Moderate Potential (subtract areas with slopes greater than 30%)**: 10
### Number of Sites by Distance from Small Lakes (5-100 ha) According to Slope

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**Buffers for Small Lakes (1-100 ha) (as defined in section 4.3.3.3)**

- **0-50 m** High Potential (subtract areas with slopes greater than 60%) - 25
- **50-150 m** High-Moderate Potential (subtract areas with slopes greater than 45%) - 24
- **150-500 m** Moderate Potential (subtract areas with slopes greater than 30%) - 36
### Number of Sites by Distance from Very Small Lakes (<5 ha) According to Slope

<table>
<thead>
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<th>1-14</th>
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Buffers for Very Small Lakes (<5 ha) (as defined in section 4.3.3.4) | Sites Captured
---|---
0-150 m High-Moderate Potential (subtract areas with slopes greater than 30%) | 46
150-500 m Moderate Potential (subtract areas with slopes greater than 30%) | 118
### Number of Sites by Distance from Large Wetlands (>5 ha) According to Slope

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<tr>
<th>Distance from Variable (m)</th>
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<th>15-29</th>
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**Buffers for Large Wetlands** (as defined in section 4.3.3.5)

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### Number of Sites by Distance from Small Wetlands (<5 ha) According to Slope

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**Buffers for Small Wetlands (as defined in section 4.3.3.5)**

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### Number of Sites by Distance from Two Line Rivers According to Slope

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**Buffers for Two Line Rivers** (as defined in section 4.3.2.1)

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<tr>
<td>1000-1500 m Moderate Potential</td>
<td>44</td>
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</table>
Glossary of Terms

Adze
See Celt.

Aeolian
Soil deposits transported by wind.

Alluvial
Soil deposits created or transported by water.

Anadromus
Fish and eels that return to a river to spawn.

Archaeological permit
Issued by the Archaeology Branch and allows identification, assessment and/or modification of an archaeological site.

Archaeological overview assessment
Study used to predict archaeological potential.

Archaeological significance
Importance of a resource or resource class. Archaeological or scientific importance is based on the ability of a resource to answer research questions relating to past lifeways. Several other criteria are also used to evaluate the heritage significance of an archaeological site and are detailed in Archaeology Branch Guidelines.

Archaeology Branch
Branch of the Ministry of Small Business, Tourism and Culture responsible for management and protection of archaeological sites.

Artifact
Object (often bone or stone) intentionally modified through human action: for example, a projectile point.

Atlatl
Stick used to propel a spear.

Biface
Stone tool which has been worked on two opposing faces or sides, such as a knife.

Biodiversity
Level of local biodiversity often measured as the number of species present.

Borden number
Site designation developed by C. E. Borden which divides all of Canada into a series of rectangles based on longitude and latitude.
Burial
Intentional interment of human remains in either a primary (original burial) or secondary (reburial) context.

Burial site
Used for the interment of human remains, but not used for other activities.

Cache pit
Small culturally produced depression in the ground. Cache pits were dug to store food and other resources.

Celt
Ground stone blade often made from nephrite hafted at right angles and used in woodworking.

CHIN
Canadian Heritage Information Network which includes a computerized site form database.

Chipped stone
Stone tools produced by removal of flakes or chips by impact or pressure.

Core
Piece of stone from which flakes have been removed for use as tools.

Culturally modified tree (CMT)
Tree showing evidence of historical or prehistoric modification including bark stripping, blazing, plank removal, test holes or felling. Generally applies to traditional First Nation activities.

Cultural chronology
History of a region as interpreted from archaeologically visible changes in artifact types and subsistence strategies.

Dart point
Large projectile point thought to have been hafted to a dart propelled by an atlatl.

Drumlin
Elongated gravelly hill deposited by glacial action. Often have one side steeper than the others.

Esker
Linear accumulation of glacial debris.

Ethnographically named place
Has a traditional First Nation name. These often include villages occupied in historic times, fishing spots or geographical features.

Ethnography
Description of living peoples usually through observations or interviews.
Excavation
Large scale controlled subsurface archaeological testing. Usually involving the hand excavation of test units in natural or arbitrary levels.

Faunal remains
Animal remains associated with human activity but not used as tools.

Fish weir
Stone or wood barrier constructed to control the movement of fish.

Grave goods
Also known as burial associations, artifacts and faunal remains intentionally interred with human remains.

Ground stone
Class of stone tools produced by pecking and/or grinding.

Heritage Act
Heritage Conservation Act of 1994 is the legislation designed to protect archaeological and heritage resources. The presence of the Act ensures that most archaeological sites are protected by law.

Historic site
Dates from post-European contact.

House pit
Depression remaining from pithouse construction. Often circular or rectangular and can have a defined rim.

Hypsithermal
Post-glacial warm interval 7000-600 B.C.

Impact assessment
Archaeological work necessary to assess the impact of a proposed project to an archaeological resource or resources. Methods of investigation can involve documentary research, survey, excavation, and/or other methods. This work forms the basis for determining the need for additional mitigative work.

Inventory
Compilation of a list of archaeological resources within a given project area through archival and field procedures. This listing does not involve assessment of the significance of the resources.

Knapping
Removal of flakes through impact or pressure. Technique used in production of chipped stone tools.

Lithic
Stone tool or the debris from stone tool manufacture.
Lithic scatter
Scatter of stone tools and debris from tool manufacture

Microblade
Small linear flake often hafted for use as a cutting or incising tool

Mitigation
Archaeological work required to mitigate (make less damaging) the disturbance occurring to an archaeological resource due to a project. Can take the form of excavation, documentation, oral history, historical research, and/or laboratory analysis. Can incorporate protective measures such as avoidance or capping to avoid or reduce site damage.

Osteology
Scientific study of bones.

Overview
Study of documents and maps examining the known cultural resources and potential for cultural resources within a given area.

Pebble tool
Pebble (usually stream rounded) with flakes removed to form a tool

Petroform
Series of rocks intentionally aligned (e.g., a fish weir).

Petroglyph
Picture pecked or carved into stone.

Pictograph
Picture painted often with red ochre onto a rock surface.

Pithouse
Traditional native house type roofed and walled with a central post usually evidenced only by an excavated depression.

Projectile point
Stone or bone point used to tip a projectile (such as a spear, arrow, or dart).

Quarry
Source area for lithic materials used in the production of stone tools. Often characterized by dense concentrations of chipping debris.

Roasting pit
Depression dug for cooking often distinguished by an ashy matrix.

Radiocarbon dating
Analysis of C13/C14 ratios in order to determine the absolute age of organic materials. This analysis is done at specialized laboratories outside of B.C.
Rock art sites
Images exhibited on usually non-portable lithic materials. Can be grouped into two categories: petroglyphs (pecked designs) and pictographs (painted designs). Images are often placed in highly visible locations and can date from either the prehistoric or historic periods.

Scarp
Steep slope often along the edge of a mesa.

Seasonal round
Seasonally variable subsistence strategy of a people, involving collection of different resources at different times of the year.

Site
In archaeology, a place where physical evidence of past human activity has been detected.

Site assessment
Archaeological work necessary to assess significance of a given site. Work may consist of lab and field work to determine archaeological significance. Differs from impact assessment in that the site is assessed apart from considerations of impact.

Site form
Developed by the Archaeology Branch for the systematic collection of information about an archaeological site.

Stratigraphy
Layers of several temporally and/or constituent distinct soil layers which can indicate differing activities or occupation over time.

Subsistence feature
(Such as a weir or cache pit) of cultural origin related to a particular food procurement activity.

Subsistence strategy
Food collection and storage strategy of a people.

Survey
Examination of areas for archaeological materials based primarily on surface indications.

Task specific site
Used for a single task or a narrow range of tasks such as a hunting blind or CMT cluster. Such sites have a restricted range of artifacts.

Trade goods
Artifacts which indicate exchange with Europeans including glass beads, axe heads, and gun parts. Trade goods can also be prehistoric if an artifact has a known and limited distribution far from the area in which it was found.
Traditional use area
Used by a First Nation group for a period of time, including hunting and fishing areas.

Trail
Linear feature created by the movement of people often marked by CMTs and campsites.

TRIM
Terrain Resource Information Management.

Ungulates
Hoofed mammal usually a grazer.

Uniface
Stone tool having modification on only one side.

Village site
Used for a wide variety of activities including seasonal or permanent habitation. Such sites have a wide diversity of artifacts.
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<table>
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