

**Carrier Sekani Tribal Council
Aboriginal Interests & Use Study
on the
Enbridge Gateway Pipeline**



*An Assessment of the Impacts of the Proposed
Enbridge Gateway Pipeline on the Carrier Sekani
First Nations*

May 2006

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This study involved many community members in various capacities including:

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SECTION 1.0 INTRODUCTION

1.1 PURPOSE OF DOCUMENT & OVERVIEW OF STUDY BACKGROUND

The Carrier Sekani Tribal Council (CSTC), in cooperation with its member First Nations, has drafted *The Carrier Sekani Tribal Council Aboriginal Interests & Use Study on the Enbridge Gateway Pipeline* (AIUS). This document is intended to:

- Provide a preliminary assessment of the potential environmental and socio-economic impacts of the Gateway pipeline;
- Provide an overview of the Aboriginal title and rights of the Carrier Sekani that would be impacted or infringed by the Gateway pipeline;
- Give voice to the concerns of the Carrier Sekani community members;
- Place the proposed Gateway pipeline in the context of cumulative impacts within the Carrier Sekani territory and the broader experience of First Nations affected by pipeline and oil and gas development.

The Carrier Sekani Tribal Council Aboriginal Interests & Use Study on the Enbridge Gateway Pipeline was undertaken with full support of the member First Nations in late 2005. The CSTC proposed to carry out independent studies on the proposed project and the proponent company agreed to fund these studies. The CSTC utilized the expertise of several independent consultants, academic scholars, tribal council staff, and community members to carry out the required research.

While external experts have contributed significantly to this study and provided valuable data for community members to review and consider in their decision making process, it is the community members who have guided the research process and whose voices are the defining element in this document. Throughout the development of this process the CSTC has engaged member First Nations through the following:

- Community Coordinators appointed in each community to liaise with CSTC and researchers, distribute information to community members, provide direction to CSTC staff and researchers;
- Ethnographic interviews with Elders and trapline holders;
- Community meetings on the AIUS process requesting community input on areas of research focus;
- Community meetings to present an overview of environmental impacts and to gain input on specific Aboriginal interests;
- Final community review of the draft AIUS, with opportunity for modification and additions where necessary.

The Carrier Sekani Tribal Council has advocated for meaningful involvement of the member First Nations in any decision making process on lands and resources within their territories, including the regulatory process for Gateway Pipeline. This document is meant to establish the context for any decision making process on the Gateway Pipeline, but it is preliminary in nature.

As more information becomes available, and the company releases its baseline studies, more work will be required to assess in further detail the impacts of the proposed pipeline.

1.2 CARRIER SEKANI TRIBAL COUNCIL OVERVIEW

The Carrier Sekani Tribal Council is a registered non-profit society, incorporated in 1979. Currently there are seven member nations:

- Burns Lake Band (Ts'il Kaz Koh First Nation)
- Nadleh Whut'en Band
- Nak'azdli Band
- Saik'uz First Nation
- Wet'suwet'en First Nation
- Takla Lake First Nation
- Tl'azt'en Nation

The Carrier Sekani Tribal Council formed to bring together Carrier and Sekani First Nations in a collective effort to:

- Preserve and promote the Carrier & Sekani heritage and identity;
- Improve the social and economic independence of Carrier & Sekani people;
- Achieve a just resolution of land claims and aboriginal rights issues for the Carrier & Sekani people;
- Promote better understanding between First Nations people and the general public;
- Advance and improve the standard of living of the Carrier & Sekani people;
- Promote self-government for the Carrier & Sekani people.

We are governed by a Board of Directors comprised of the Chief Councillors from each First Nation. Every three years a Tribal Chief and Vice-Tribal Chief are elected by the membership of the First Nations. The Board of Directors, Tribal Chief and Vice-Tribal Chief are responsible for directing the staff of the CSTC to provide various services to the member First Nations. Our objective is to help our member nations achieve self-reliance through the delivery of support services in the following areas:

- Economic development
- Education
- Fisheries
- Forestry
- Financial Management
- Natural Resources
- First Nations Community Management
- First Nations Community Planning
- Technical Services
- Treaty Negotiations

Many of the core activities of the CSTC focus on assisting member nations in their collective effort to secure their rights to their traditional lands and resources. To further the work we do, we maintain political affiliations with the Assembly of First Nations and the First Nations Summit.

CSTC staff and executive strive to work in a way that reflects the founding vision and principles established through the *Carrier & Sekani Declaration & Claim, 1982*.

Carrier & Sekani Declaration & Claim

April 15, 1982

WHEREAS we of the Carrier and Sekani Tribes have been, since time immemorial, the original owners, occupants and users of the north central part of what is now called the province of British Columbia and more specifically that area of the said province outlined in red contained in the map attached hereto as schedule "A" (hereinafter referred to as "the said lands"),

AND WHEREAS in addition to the original ownership, occupancy and use, we have exercised jurisdiction as a sovereign people over the said lands since time immemorial,

AND WHEREAS this original ownership, occupancy and use, and jurisdiction by our people over the said lands has never been surrendered by our people through conquest, treaty or any other legal means to the British crown or to its colonial governments or to the Crown in right of the province of British Columbia or to the Crown in right of Canada or to any other government.

AND WHEREAS this original ownership, occupancy and use by our people, and jurisdiction over the said lands has never been superseded by law,

AND WHEREAS much of the said lands is, without our consent, now occupied and its resources used by people not indigenous to our lands,

AND WHEREAS such occupation and use by non indigenous people to the said lands is without compensation to our people,

WE, the representatives of the Carrier and Sekani Tribes hereby declare and assert our continued original ownership, occupancy and use of, and jurisdiction over the said lands and all its resources,

AND WE further declare and assert the continued existence of those rights which flow from our original ownership, occupancy and use of, and the jurisdiction of the said lands and all its resources,

AND further we hereby demand of the governments of Canada and British Columbia compensation for their past, present and proposed use and occupancy of our lands and all its resources.

CSTC Treaty Negotiations

The CSTC has been engaged in treaty negotiations since the original establishment of the modern treaty making process in British Columbia. The CSTC are currently at Stage Four in the six-stage BC treaty process. Throughout more than a decade of negotiations, the CSTC have continued to demand interim protection measures that would protect the territories pending a final agreement. Despite repeated efforts to negotiate interim protection measures, both levels of government have neither slowed down nor stopped development on Carrier Sekani lands.

CSTC Land Use Planning

Carrier Sekani Tribal Council is currently involved in the development of a regional land use plan that is community-based and represents the vision for the territories that is sustainable and ensures the incorporation of traditional teachings. CSTC First Nations have not been involved in the land use planning processes of the BC provincial government (LRMPs), and are seeking government-to-government arrangements on strategic land use planning. CSTC maintains that First Nations are not equivalent to stakeholders in land use planning, by virtue of existing title and rights that are constitutionally protected.

CSTC Fisheries

The CSTC has an active fisheries department that seeks to protect Aboriginal rights to fish and promotes sustainable management of the region's fisheries. Since 1993 CSTC has been involved in the Aboriginal Fisheries Strategy. Through this program CSTC Fisheries staff are involved in work in enumeration, stream temperature monitoring, sockeye restoration, white sturgeon recovery, and other activities in the Fraser and Nechako basins, including the Stuart River, Nadina River, Stellako River, Endako River, Ormond Creek, and the Nautley River.¹

¹ *Carrier Sekani Fisheries Program Overview: 1993-2004*. Prince George: Carrier Sekani Tribal Council, 2004.

1.3 DESCRIPTION OF PROPOSED PROJECT²

Gateway Pipeline Inc., on behalf of the Gateway Pipeline Limited Partnership (Gateway) proposes to construct and operate an export oil pipeline and an import condensate pipeline between an inland terminal near Kitimat, British Columbia and Edmonton, Alberta. Gateway also proposes to construct and operate marine infrastructure at tidewater to accommodate transfer of oil and condensate into and out of tankers, respectively. The marine infrastructure will be an integral component of the pipeline terminal near Kitimat. These activities are collectively referred to as the Enbridge Gateway Project.

The project has been developed to address commercial needs. These needs have been identified as:

- The need to transport future oil sands production to existing and new markets.
- The need for a condensate pipeline to transport hydrocarbon from a west coast terminal to markets in Alberta.

The project has an estimated capital cost of approximately \$4 billion (2005 Canadian dollars). The project requires the construction of a right-of-way approximately 1150km in length, in which both the oil and condensate pipelines would be located. A new terminal would be constructed near Kitimat. This terminal would include tankage for oil and condensate. Oil will be sourced from the Alberta oil sands region and delivered from the Edmonton area ultimately to markets around the Pacific Rim and in the western United States. Condensate likely will be received from a variety of supply locations worldwide. Once delivered to the Edmonton area, the condensate would be available for transport to sources of bitumen production for blending purposes.

In addition to the pipelines, the project would include the following components:

- Six single service (oil), including one initiation station, and three dual service (oil and condensate) pump stations, a single pressure letdown station (oil), and a pressure initiation station (condensate).
- All-weather road access and electrical power requirements for the pump stations and all-weather road access to the Gateway marine terminal. There would also be temporary access roads, campsites, and other support facilities (e.g. borrow pits, stockpile sites) required for construction.

The products that would be carried through the pipelines have the following chemical composition:

² This sub-section is taken from:
Gateway Pipeline Inc., *Preliminary Information Package: Enbridge Gateway Project*. Calgary: Gateway Pipeline, 2005.

- **Synthetic Crude Oil:** Similar to conventional crude oil, containing a complex mixture of aromatic hydrocarbons, naphthanes, and paraffins, but has lower sulphur content, and is not water soluble.
- **Condensate:** Gateway has not specified its content, but other sources indicate it typically contains a number of toxic chemicals including pentane, benzene, toluene, xylene, and hydrogen sulphide. In general, condensate has low water solubility, and is highly flammable and volatile.³

The right-of-way would originate in Alberta near Edmonton. From there, it would continue north to Morinville, then west and northwest past Mayorthorpe and Whitecourt to Fox Creek, generally following Highway 43 and the Alliance Pipeline right-of-way. From Fox Creek, the right-of-way would be routed west of Highway 43, following existing right-of-ways where feasible. The right-of-way would enter British Columbia southeast of Tumbler Ridge and continue west-southwest to Bear Lake. From Bear Lake, the right-of-way would be routed south of Fort St. James, across Highway 16 at Burns Lake and west, crossing Highway 37 north of Kitimat. From this point, the right-of-way would be routed south past Kitimat, along the west side of Kitimat Arm to the Gateway marine terminal north of Bish Cove.

The pipeline would cross the territories of numerous First Nations in Alberta and British Columbia, with approximately one third of the pipeline proposed to cross through the territories of the Carrier Sekani First Nations in north central British Columbia.

³ This description of the chemical make-up of synthetic crude oil and condensate is taken from the report in Section 4.0, submitted by Summit Environmental Consultants to Carrier Sekani Tribal Council, April 2006.

SECTION 2.0

THE CARRIER SEKANI TRIBAL COUNCIL FIRST NATIONS

Introduction

The oral history of the Carrier Sekani is the primary authority on their culture, governance, and territories. Parts of these histories have been documented by scholars and external experts, which reinforces the title and rights of the Carrier Sekani. The history, territories, culture, and governance of the Carrier and Sekani have been well documented by anthropologists (Duff, 1951; Goldman, 1953; Jenness, 1937; Jenness, 1943; Morice, 1893). A contemporary overview of the traditional livelihood and worldview of the Carrier is found in Furniss (Furniss, 1995: 520-532). A summary of traditional Sekani society, beliefs and livelihood, based on the observations of early non-aboriginal explorers and anthropologists, is found in Clare (2000). An historical and contemporary overview of self-government and the territories of the Carrier Sekani is found in Brown (2002), which summarizes the key findings of the above listed authors.⁴

This section reflects both the Carrier Sekani oral histories, as well as the external descriptions provided in the above listed sources. In addition, recent work carried out by the Carrier Sekani Tribal Council and its member nations, is also used as the basis of this section (i.e. Traditional Use Studies, Oral History Projects, and other interviews).

2.1 THE PEOPLE

The Carrier Sekani have occupied a vast territory in north central British Columbia from time immemorial. The Carrier and Sekani are Athapaskan speaking peoples. In most Athapaskan languages the word for people is “dene”, sometimes pronounced as “ne”, “t’en, or “jan”. The name “Carrier” was introduced through European explorers. In their own language the Carrier refer to themselves as Dakelh-ne, Yinka Dene and Yinka Whut’en. The word “Sekani” means “people of the rocks”.⁵ The member nations of the Carrier Sekani Tribal Council are part of the larger Carrier Sekani First Nations, which have been described in regional groupings. There are three branches of the Carrier:

- The Southern Carrier, whose traditional territory stretches from the Bowron Lakes in the east to the western Chilcotin Valley;
- The Central Carrier, traditionally occupying an area from the upper Fraser Valley near Jasper in the east to Cheslatta Lake in the west;
- The Northern Carrier, occupying the area from Burns Lake west to Moricetown and north to Babine Lake.

Through intermarriage and trade, the northern and central Carrier have had economic, social and political connections to the Sekani, hence the term Carrier Sekani. The Carrier Sekani, and

⁴ Doug Brown, “Carrier Sekani Self-Government in Context: Land and Resources,” *Western Geography*, 12 (2002), pp. 21–67, *Canadian Association of Geographers*.

⁵ Names given in the Dakelh language in this document are subject to variation in dialect. Many Carrier Sekani First Nations are in the process of ongoing research of place names, clan names, and translation of Dakelh concepts into English.

specifically the member nations of the CSTC, are allied with each other but each nation has its own distinct territory, usually corresponding to a watershed or lake system. Over the years, the number of Carrier Sekani First Nations who are member to the Carrier Sekani Tribal Council has changed. Table 2.1 identifies the broader Carrier Sekani Nations and the general areas of their territories.

Table 2.1 Carrier and Sekani Nations and Territories⁶ Source: Brown, 2002

<i>Nation</i>	<i>Language</i>	<i>Territory</i>
Sustut'enne	Sekani	Takla, Bear, and Thutade Lakes
Saschojan	Sekani	Ingenika, Finlay, and Ospika Rivers
Tl'azt'en	Carrier	Stuart, Cunningham, Trembleur Lakes
Nadot'en	Carrier	Babine Lake, Babine River
Wetsewe T'enne	Carrier	Burns, Broman, and Francois Lakes, Bulkley River
K'oo Dene	Carrier	Stuart Lake, Fort St. James
Lheidli T'enne	Carrier	Fraser River and Nechako River, near Prince George
Sai K'uz whet'en	Carrier	Nechako River, Vanderhoof
Na dle t'en	Carrier	Fraser Lake
Stellat'en	Carrier	Fraser Lake, Francois Lake
Tsu yaz to t'en	Carrier	Ootsa, Tatsa, Cheslatta Lakes
Yekoocht'en	Carrier	Stuart Lake

Sekani

Tsay Keh Dene	Sekani	Ingenika, Finlay and Omineca Rivers, Williston Reservoir
McLeod Lake Dene	Sekani	McLeod Lake, Parsnip River, Carp Lake, lower Williston Reservoir
Fort Ware (Kwada Hi)	Sekani	upper Finlay River, Bear Lake, Takla Lake, upper Williston Reservoir

Note 2: The territories mentioned above are not meant to be exact definitions, but rather general locations of traditional areas.

⁶ The names of the Carrier Sekani Nations in this table are drawn from historical names that are close to the current names used, or in some cases are no longer used as the official name of the First Nation (i.e. Nak'azdli First Nation was known as *K'oo Dene*). The description of the territories remains the same though.

The Carrier Sekani way of life is directly tied to the land, and the people rely on the health and ecological integrity of the land for their survival. The origin of the people is defined in terms of the mythological values imbued in the natural surroundings. The ancient traditions of the Carrier Sekani link the people with the land through kinship, both with one another and with the animals that inhabit the land.

The connection between the people and the land is spiritual, cultural and economic. The basis of the traditional economy is one of respect and stewardship. Traditional teachings on the principles of land use have been captured in the Carrier Sekani Land Use Vision (October 2005).

The overarching vision is expressed as follows:

Our oral history represents the values placed on the land, water and air by our people. Our management objectives are guided by the philosophy that we are part of the land. Our living and our lives come out of the land. The land is part of our family and we a part of the land.

Children were taught at a very young age to respect all living things, and to use all parts of any plants, fish, and animals that were harvested.

Carrier Sekani Principles on Land Use

- *Take care of the land and the land will take care of you.*
- *All life forms are interconnected and sacred.*
- *Sharing and coexistence are the cornerstones of Carrier Sekani resource use.*
- *Territory is not a commodity to be bought and sold — Dakelh people hold both rights and responsibilities to ensure territorial integrity and ongoing stewardship and use.*
- *Dakelh teachings on land use and ownership are passed from generation to generation.*
- *Healing: A tremendous amount of work is required in the community to heal the battered body, mind and spirit from years of social, cultural, political and economic dislocation.*
- *Rebuilding: With healing comes rebuilding of family, language, economic base, political institutions, and control of the territory and resources.*
- *Reconciliation: Discussions with government and churches to help our healing process of forgiving and reconciling.*
- *Accommodation: The respective interests of our First Nations, federal and provincial governments need to be discussed, defined, and resolved through negotiations.*

Source: Carrier Sekani Land Use Vision, 2005

The teachings of respect are reinforced by the spiritual beliefs in the “Being up on High”, who watched over the people and guided their use of the land. As Lizette Hall expresses, “they respected the environment...Boys were taught to kill game humanely, and not abuse them...no food was wasted, and no one was supposed to leave any waste around, as the ‘Up on High’ did not like it.”⁷

Familial and social relations were based on cooperative group effort and sharing. Children were taught to treat others with mutual respect, good humour, generosity, and patience. Disciplined cooperation was essential for the survival and prosperity of families, clans and communities.

⁷ Lizette Hall. *The Carrier My People*. Prince George: Papyrus Printing, 1992.

2.2 THE TERRITORIES OF THE CARRIER SEKANI

The territories of the Carrier Sekani comprise approximately 76,000 square kilometres and are located in what is now known as the Interior Plateau region, which is bounded to the east by the Rocky Mountains, to the north by the Omineca Mountains, and to the west by the Coast Mountains. The region is primarily characterized as the Sub-boreal Spruce biogeoclimatic zone, combined with parts of the Mountain Hemlock and Englemann Spruce-Subalpine Fir zones.⁸ The Carrier territories surround the Nechako, Stuart and Fraser River watersheds, while the Sekani territories coincide with the Finlay, Parsnip and Peace Rivers. The territories of Southern Carrier neighbors surround the basins of the Dean, Blackwater, and Quesnel rivers. The traditional territories of the Carrier people include lands that drain westward and southward into the Pacific Ocean, while the Sekani territories drain east and north into the Arctic Ocean.

The territories are spotted with numerous natural lakes and two man-made reservoirs. The largest lakes are the Stuart, Babine and Takla, while man-made reservoirs include the Cheslatta and Williston. The lakes and streams are rich in a diversity of fish species, including resident freshwater species (trout, char, suckers, sturgeon, whitefish) and anadromous Pacific salmon that spawn in the headwaters of the Fraser and Skeena watersheds. Salmon runs in the Fraser, Nechako, and Babine watersheds are historically significant, but in recent years face numerous threats to their sustainability.

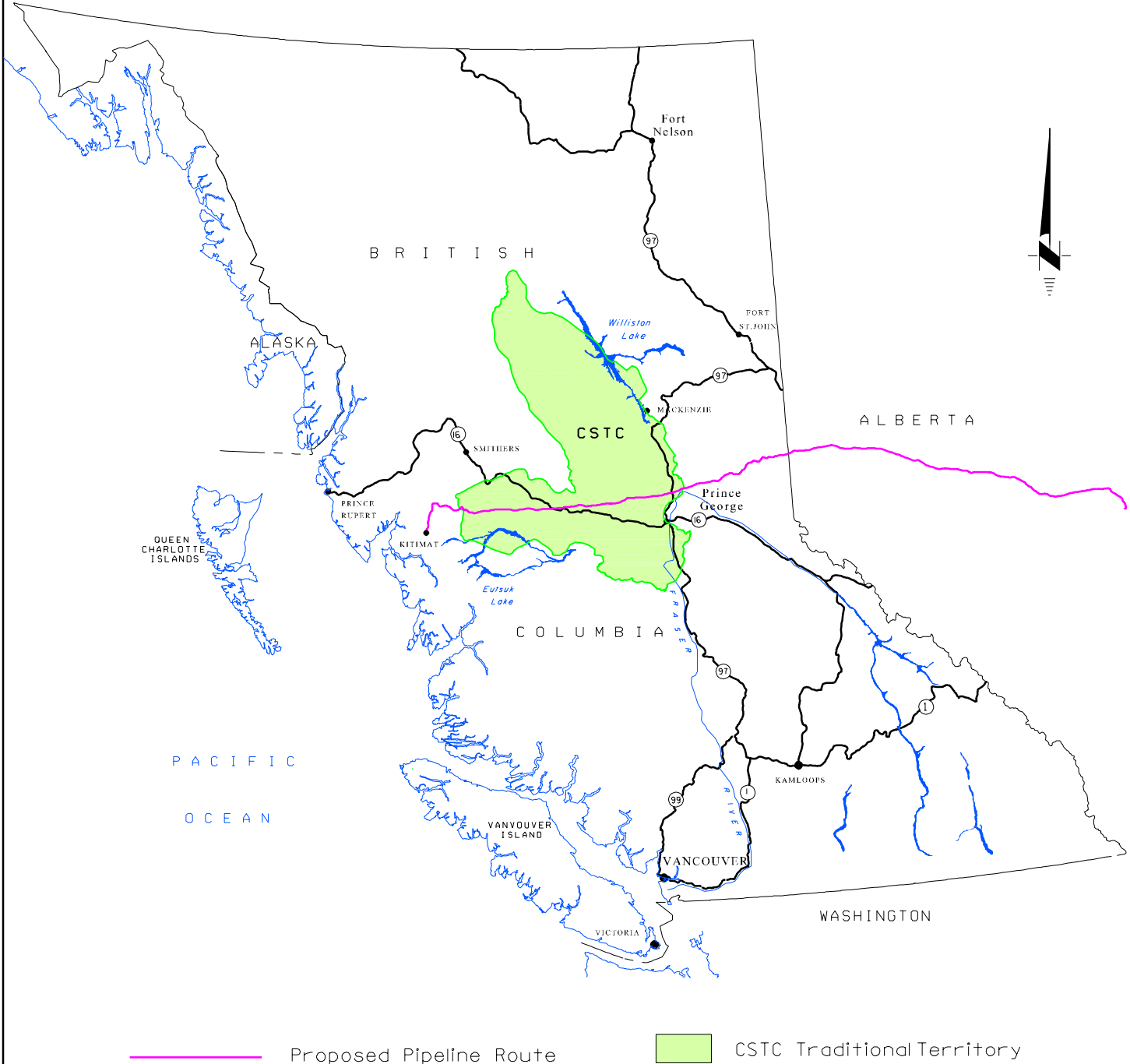
The northern reaches of the territories are mountainous, while the southern and central are flatter with large wet lands covered by stands of spruce, trembling aspen, black cottonwood, paper birch, and lodgepole pine. The forests provide ideal habitat for ungulates (moose, deer, caribou, and mountain sheep), fur bearing animals (bear, wolf, lynx, beaver, mink, marten, etc.), as well as rodents (rabbit, mice, vole, marmot, porcupine, and squirrel). The Sub-Boreal Spruce Zone is known to be the centre of abundance of moose in British Columbia.⁹ A diversity of bird life is also abundant including birds of prey (eagle, hawk, owl), songbirds, grouse, and ptarmigan, as well as waterfowl. The majority of birds are migratory as few species are able to withstand the long, cold winters.

Map 2.1 identifies the traditional territories of the Carrier Sekani First Nations, with the proposed Gateway Pipeline route included.

⁸ Brown, 22-23.

⁹ Del Meidinger and Jim Pojar. *Ecosystems of British Columbia*. Victoria BC: Research Branch, Ministry of Forests, 1991, 213.

Enbridge Proposed Pipeline Route



Carrier Sekani Tribal Council

April, 2006

Map 2.1

2.3 CARRIER SEKANI GOVERNANCE

The Carrier Sekani have been self-governing and self-reliant for thousands of years. The health and well-being of both the people and the land was ensured through the *Keyoh* and *Bahlats* system. The *Keyoh* is the system of land ownership and management which delineates use and access by clan membership. The clans of the Carrier Sekani are matrilineal entities that are maintained through exogamy (i.e. marriages allowed only with members of other clans). Each clan has a distinct *Keyoh* or traditional territory that it owns and controls. The boundaries of the *Keyoh* are often mountains, rivers, creeks, lakes and other natural landmarks.

*The Keyoh belongs to the clan.
Bear clan would have their
Keyoh, Frog clan would have
their Keyoh, and all the clans,
every member of the clan would
use that Keyoh for their
livelihood. In the late 1920's the
government took it all away and
turned it into traplines.*

-George George Sr.,
Nadleh Whut'en Elder

The *Bahlats* is the central institution through which the *Keyoh* are managed, owned and protected. *Bahlats* has come to be known as a potlatch to non-Native people. As Brown states,

Anthropological studies of the Bahlats have stressed its importance as a community event (i.e., traditional feasting) designed to reinforce social structure, settle disputes, re-distribute wealth, and express/celebrate cultural values...however, it is especially important to stress that the Bahlats was a system of land tenure and resource management.¹⁰

Clan membership and hereditary names are the structure through which the *Bahlats* operates. People are seated according to their clan, and strict protocol is followed in terms of the host and guest clans. Clan Elders and Hereditary Chiefs are central figures in maintaining the information base that allows a clan to validate the boundaries of the *Keyoh* and the resource use within them. Brown details the system of land ownership and management as follows:

Oral histories, genealogy, regalia, crests, unique songs and dances were essentially property markers that defined and upheld the clan's jurisdiction over its Keyoh. When the host clan distributed gifts to members of other clans at a Bahlats feast, their acceptance of these gifts indicated their recognition of the legitimate authority of the host clan within its Keyoh. Collective decisions, negotiations, or acts of recognition done before witnesses at a Bahlats strengthened the legitimacy of the participating clans and bound them to respect each other's jurisdiction. Inter-clan sharing of resources was arranged through the Bahlats Hereditary Chiefs.¹¹

¹⁰ Brown, 28-29, citing: Barnett, 1968; Kobrinsky, 1973; Seguin, 1991.

¹¹ Brown, 31.

Each village might have had differing compositions of clans and sub-clans, but the main clans of the Carrier Sekani consist of:

Beaver/Owl/Ermine – *Lhts'musyoo*
Bear - *Lojobou*
Frog/Grouse - *Lusilyoo*
Caribou – *Kwun Ba Whut'en*
Wolf - *La' Gh Jaboo*¹²

The *Keyoh* provided the clans with a wealth of food, clothing, medicine and spiritual sustenance. However, in times of scarcity and because of general uneven distribution of resources throughout the landscape, social and economic cooperation was an essential component of the *Bahlats* system. Moreover, extensive trade networks were established through trails and waterways to exchange surplus goods between neighbouring First Nations. For example, the relatively large and stable salmon runs of the Northern and Central Carrier provided ample surplus for preservation and trade.

While the institutions of the Carrier Sekani are much different than those of European origin, they are imbued with concepts and practices of land title and management. The territorial boundaries are both the result of, and maintained through, historical alliances, diplomacy, and war.

2.4 THE SEASONAL ROUND AND TRADITIONAL LIVELIHOOD

Within the territories or the *Keyoh*, clans and extended families used numerous sites, trails and waterways to hunt, trap, fish, gather plants and berries, and preserve food for winter storage. Anthropologists have referred to this way of life as the “annual round” or the “seasonal round.” This mobility was “systematic and purposeful, not random and haphazard.”¹³ An intimate and comprehensive knowledge of the terrain, seasons, waterways, fish and wildlife was essential to survival. In the same way that all parts of an animal or fish would be utilized by the people, the entirety of the *Keyoh* is integral for the well being of the people. Moreover, mobility was only within clear territorial boundaries and knowledge of these boundaries was mutually affirmed by different clans, communities, and nations.

The following describes the types of activities that would be carried out in a seasonal manner:

- **Spring:** People return from trapping, bringing back dried beaver meat, geese, and swan. Some lakes filled with *pooldooz* ducks (fish ducks) which were hunted for food. *Goosbai* (suckerfish) dried for food. *Dagoose* (trout) and ling cod also fished. Gathering of birch bark for storage containers. Edible roots and wild celery, cow parsnip, wild rhubarb and fireweed gathered. Willow bark gathered to make *K'altai* (the rope for fish nets and anchors.)

¹² Nak'azdli Elders Society. *Nak'azdli Elders Speak*. Penticton: Theytus Books, 2001.

¹³ Brown, 24.



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Title: Indian Village at The Mouth of Stuart Lake

Processed From Host on Tue Mar 21 20:35:59 2006

- **Summer:** Fish traps, weirs and barricades would be set up at the key locations in early July, including the mouth of the Stuart River. People would stay near the smokehouses on the shores of a river or lake. Men would go out into the bush and mark the pathways of the beaver, so they could return to those places in the fall for

hunting. Late summer begin hunting for groundhogs and caribou, from the lowlands to the mountains. Berries gathered in higher drier locations (saskatoons, huckleberries, and soapberries) are gathered for preservation for the winter months (*Maitlus* is dried soapberries or blueberries, *Tsa Chun* is highbush blueberries rolled up for winter). Summer was also a time for summer sessions (*Bahlats*) regarding the governance of the territories; these 'parliamentary' sessions could involve all clans, neighboring villages, and occasionally other tribes depending on the nature of the business.

- **Fall:** Fishing for char, whitefish and late run salmon on rivers and lakes. Preservation of food and preparation of hides, moss, tools, etc. for the winter months
- **Winter:** Hunting and trapping throughout the *Keyoh*. *Duni* (moose) came into the territories after the caribou began to go further into the mountains. Beaver, muskrats, mink, lynx, fox and bear hunted and trapped. Elk and deer also hunted. Meat eaten fresh and dried for preservation, hides used for clothing, blankets and other uses. Beaver castors used for medicinal purposes.¹⁴

Throughout the year, different areas of the territories are used for distinct purposes. Territorial boundaries were established to ensure the prosperity of the clan, and to ensure peaceful relations with neighboring clans and communities. The territories have never been described, used, or understood in a site specific manner (i.e. specific sites of harvesting, fishing, hunting). To do this undermines the existence of the Carrier Sekani culture, way of life and the substance of their Aboriginal rights and title. Moreover, development on the territories is often seen as having impacts beyond the specific site (i.e. downstream impacts on rivers etc).

¹⁴ *Nak'azdli Elders Speak.*

2.5 HISTORICAL CUMULATIVE IMPACTS OF SETTLEMENT & INDUSTRIAL DEVELOPMENT

The significant impacts on the territories of the Carrier Sekani coincide with the social, economic, and political impacts of colonialism. It has taken little more than a century to transform the territories from a flourishing Indigenous landscape, to an industrially developed resource frontier. The following are the central impacts that have accumulated since contact with Europeans.

- Alienation of territorial lands without consent of or compensation to First Nations, including:
 - Allocation of ecologically and economically valuable land to non-Native farmers and ranchers, without consent or compensation to First Nations;
 - Creation of Indian reserve lands and registered traplines, meant to supersede traditional *Keyoh* and *Bahlats*;
 - Creation of Crown grazing leases;
 - Allocation of logging tenures to non-Natives resulting in widespread clear-cutting;
 - Allocation of guide-outfitting territories to non-Natives;
 - Establishment of a modern transportation network (road and railway), power grid and other energy and utilities related right-of-ways.
- Environmental impacts from industrial development broadly include:
 - Herbicide and pesticide spraying against certain weed species, resulting in contamination of numerous plants and berries harvested by Carrier Sekani people;
 - Modern silviculture practices including replanting of commercial species;
 - Destructive road building practices by industry users threatening salmon spawning grounds with siltation due to slumping of stream banks;
 - Release of chlorine-based dioxins and furans into the waterways near pulpmills;
 - Dramatic reduction in the stability of salmon runs in the Fraser-Nechako drainage system (including Fraser Lake and Stuart-Trembleur Lake after the 1913 destruction of the sockeye run, due to the debris from CNR construction at Hell's Gate blocking the Fraser River);
 - Construction of the Kenny Dam on the Nechako River, reversing the water flow and sending water westward to generate electricity for use and sale by the Alcan corporation;
 - Pollution and tailings waste contamination from mining operations, most notably at Endako, Pinchi, Kemess South, and Huckleberry.¹⁵

These cumulative impacts brought on by industrial development and settlement have drastically altered the territories in a fraction of the time that the Carrier Sekani have inhabited this region. As Brown describes:

When the explorer and fur trader Alexander McKenzie first met the Carrier and Sekani in 1793 their territory was a pristine wilderness. The forests and waterways provided an environment

¹⁵ Brown, 36-52.

*within which a variety of animals, plants, and fish formed the resources base that sustained the people. A network of trails and water routes for trade and travel connected the Carrier and Sekani village sites. Within their traditional territories Carrier and Sekani hunter-gatherers accessed their resource harvesting areas by canoe and ancient trails. Their traditional way of life left a soft footprint on the land.*¹⁶

With any significant development on Carrier Sekani territories, the current context of cumulative impacts must be assessed, and how the proposed development will exacerbate prior impacts. Because the landscape of the Carrier Sekani is so remarkably different than it was prior to contact, any new incursions into the territories must be assessed in the context of cumulative impacts. In light of these historical and contemporary impacts, going forward it is not appropriate to look at each proposed project in isolation. One of the most significant historical impacts to the traditional land ownership and management system was the introduction of registered traplines.

2.6 THE INTRODUCTION AND IMPOSITION OF REGISTERED TRAPLINES

Throughout the 1920's and 1930's the provincial government established the registered trapline system. The external government insisted on patrilineal ownership of the traplines, which superseded the matrilineal *Keyoh* and clan system. While most of the registered traplines aligned somewhat with the *Keyoh* boundaries, the term "trapline" limited the additional significant uses of the territories to trapping activities. Many have adhered to this external system as a way to have some form of rights to the land recognized by government, but it is equally recognized in Carrier Sekani communities that traplines are not the source of their Aboriginal title and rights, but only one possible mechanism for their marginal protection.¹⁷

Maps 2.2-2.6 identify the registered traplines of the Carrier Sekani, they are organized according to member First Nation and also include the traditional territory boundary of the individual nations.

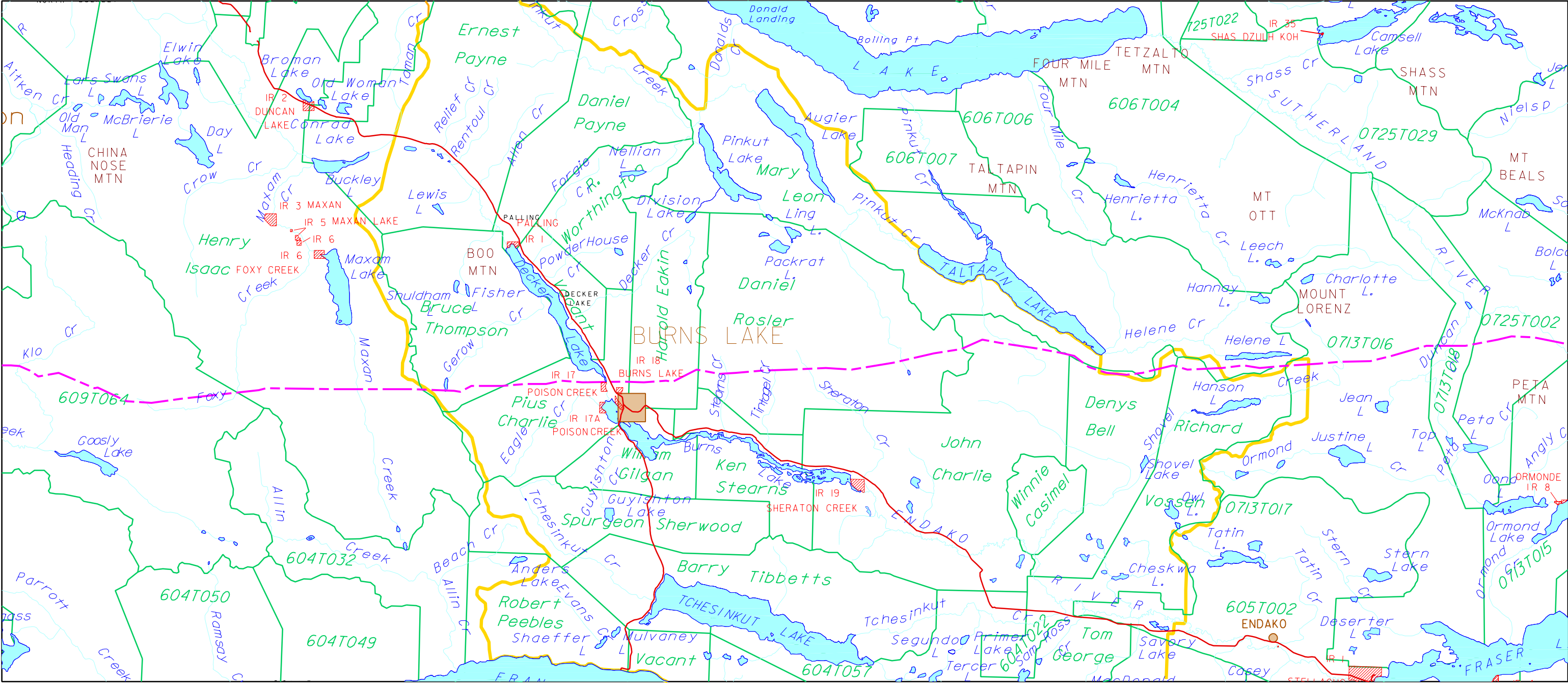
2.7 ABORIGINAL RIGHTS & TITLE OF THE CARRIER SEKANI

The territories of the Carrier Sekani, expressed through the concepts and systems of *Keyoh* and *Bahlats*, have never been ceded, released or surrendered to the provincial or federal Crown. The *Keyoh* and *Bahlats* system described in this document are the source of the constitutionally protected rights and title of the Carrier Sekani. The seasonal round of the Carrier Sekani established the systematic and regular presence of the people throughout the territories. The numerous village sites, both present and historical, represent only a small fraction of the land needed for survival.

¹⁶ Brown, 50.

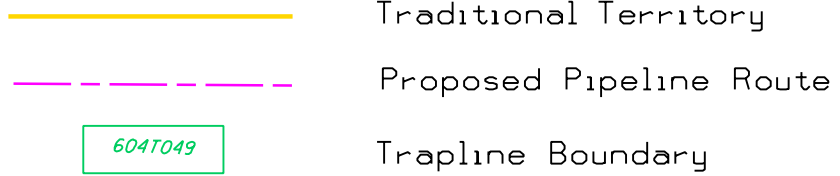
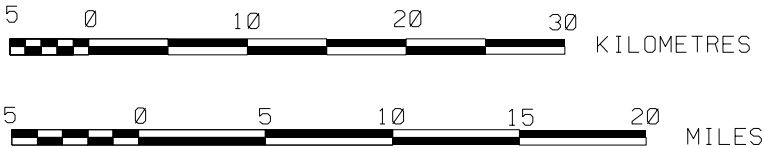
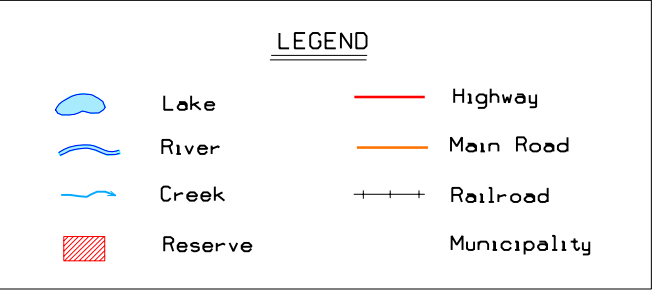
¹⁷ Cecile Patrick and Jo-Anne Fiske. *Saik'uz First Nation Traditional Use Patterns Study*. Saik'uz First Nation, 1984.

Map 2.2 - Burns Lake Band Traplines

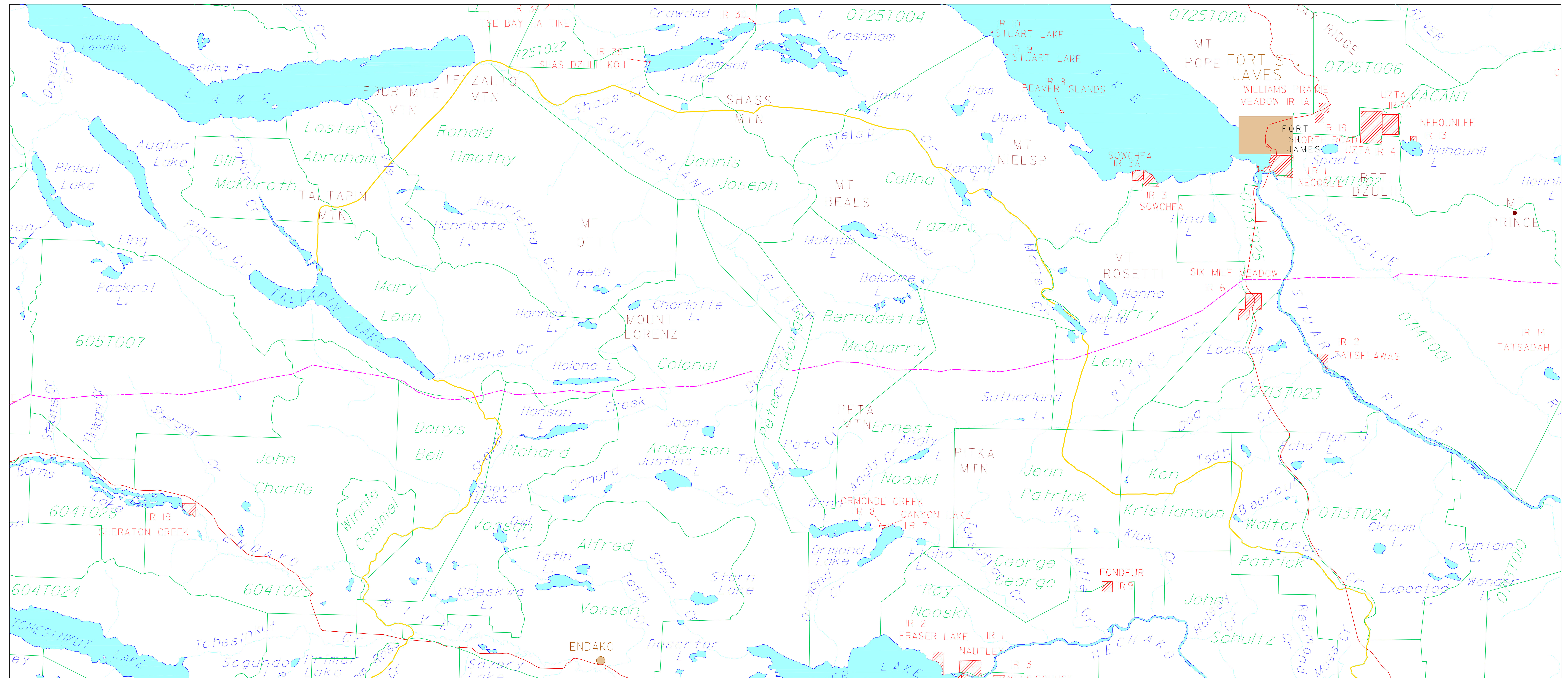


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Proposed Pipeline Corridor

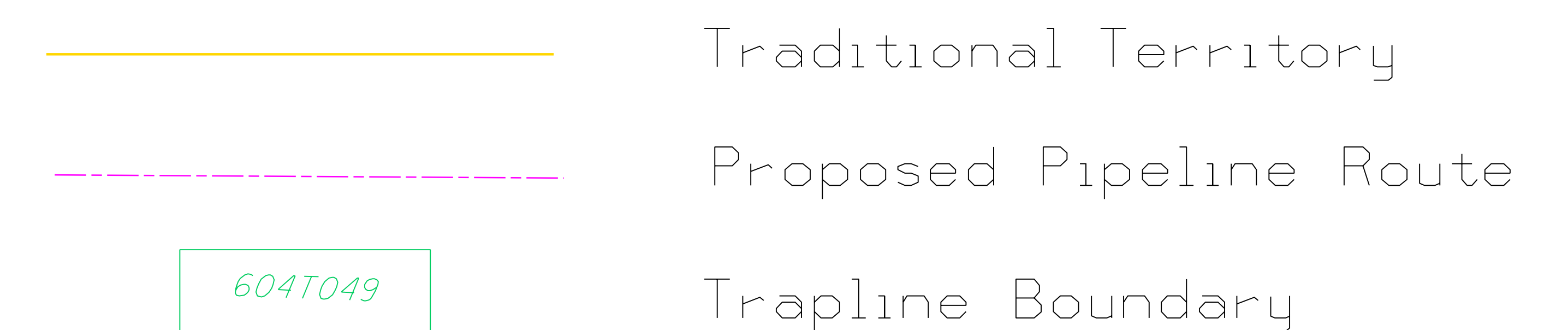
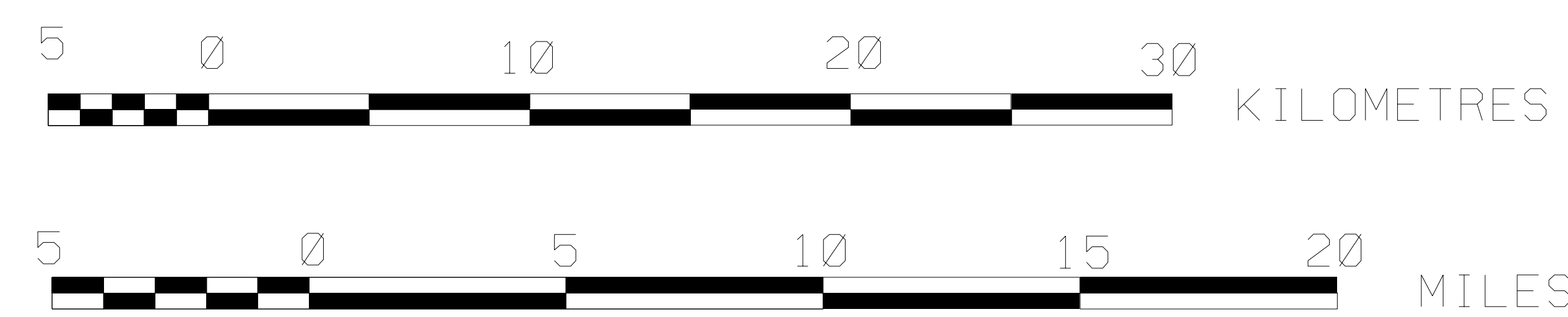
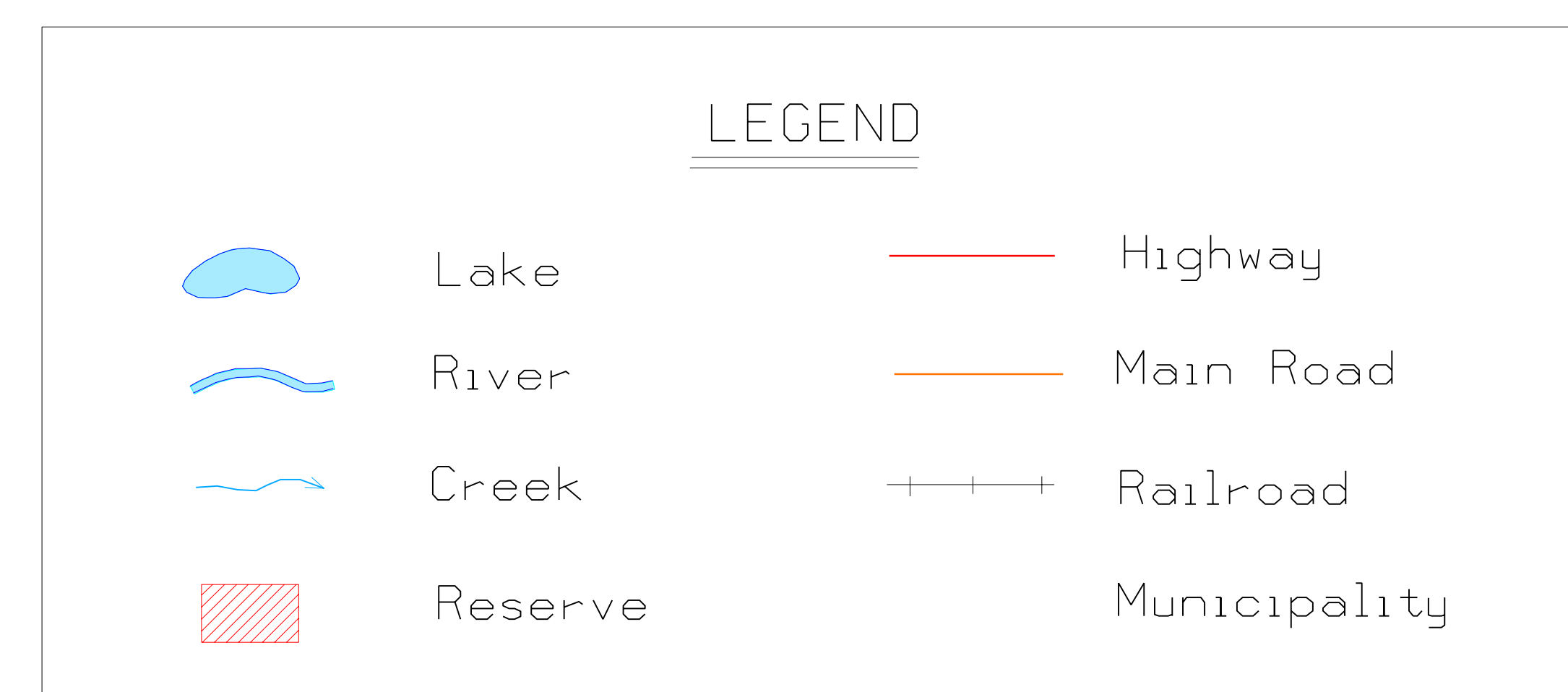


Map 2.3 - Nadleh Whut'en Traplins



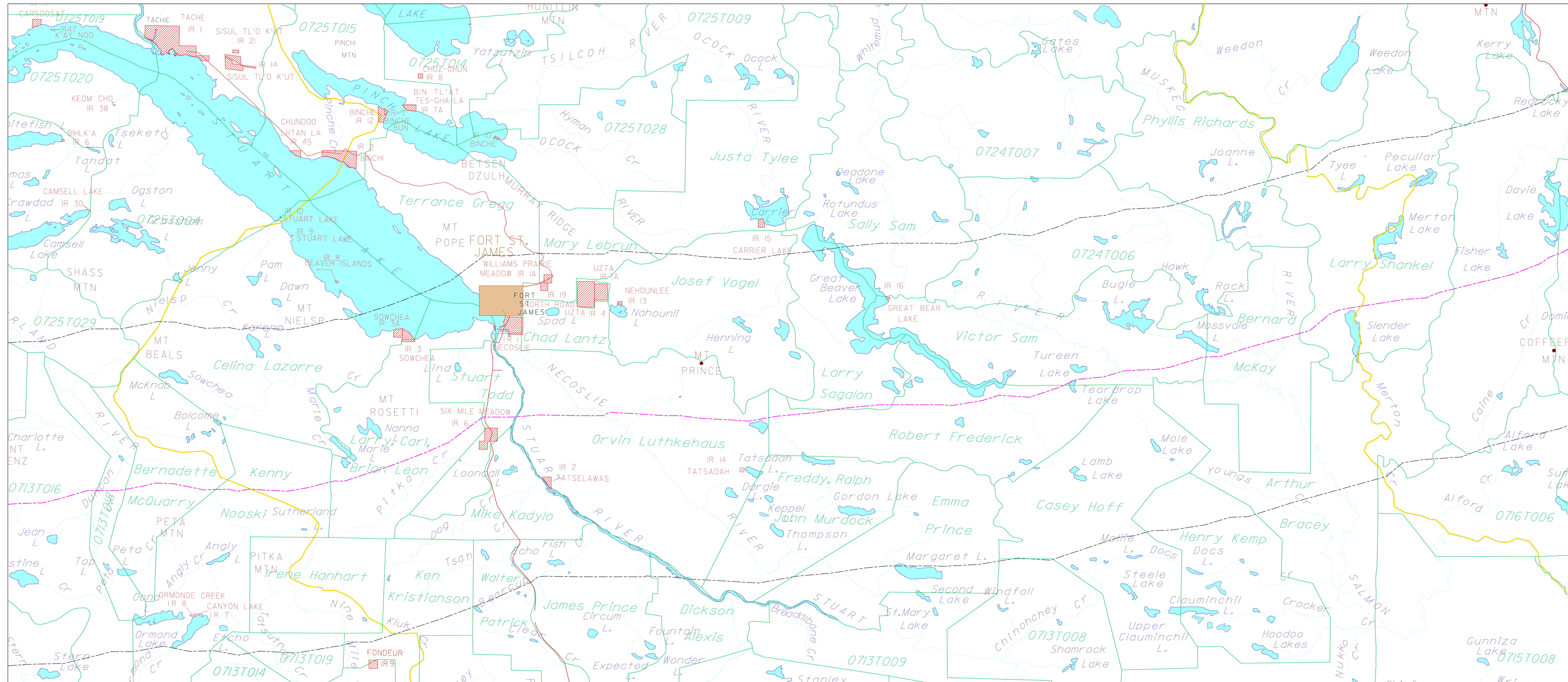
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Proposed Pipeline Corridor



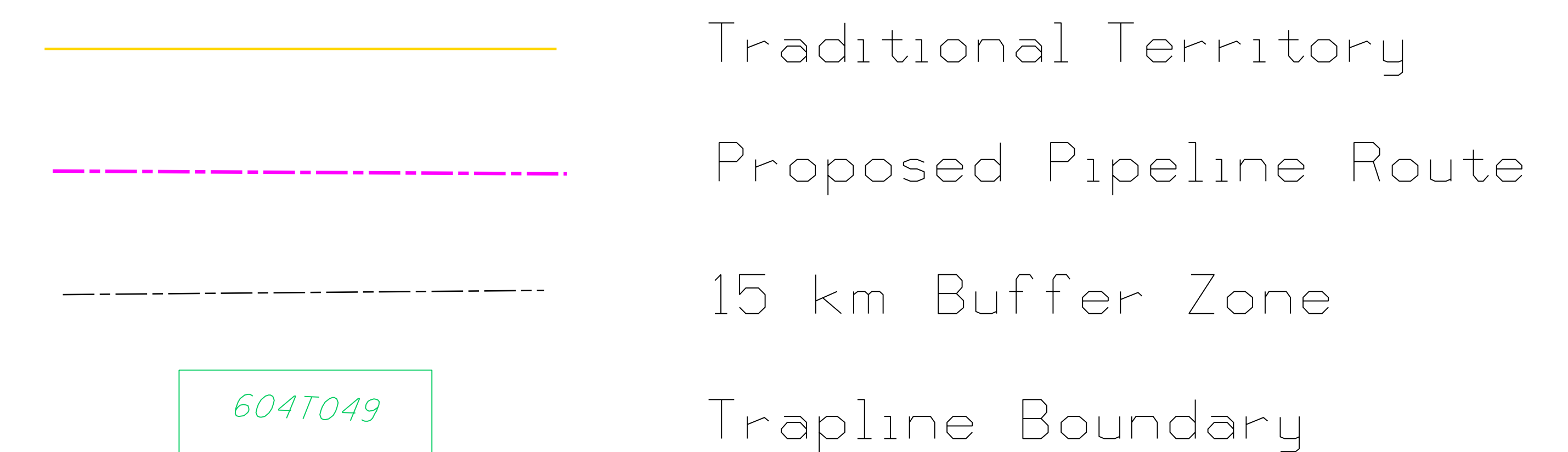
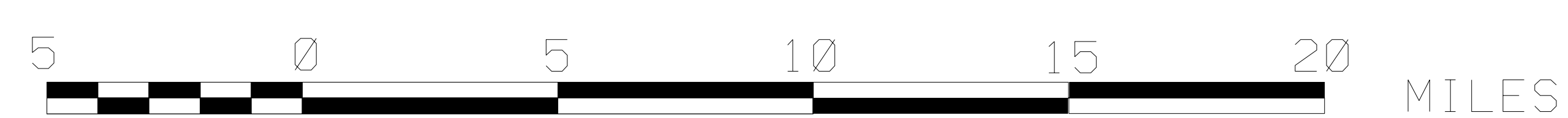
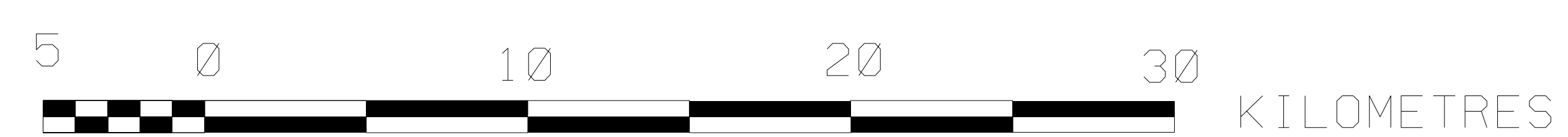
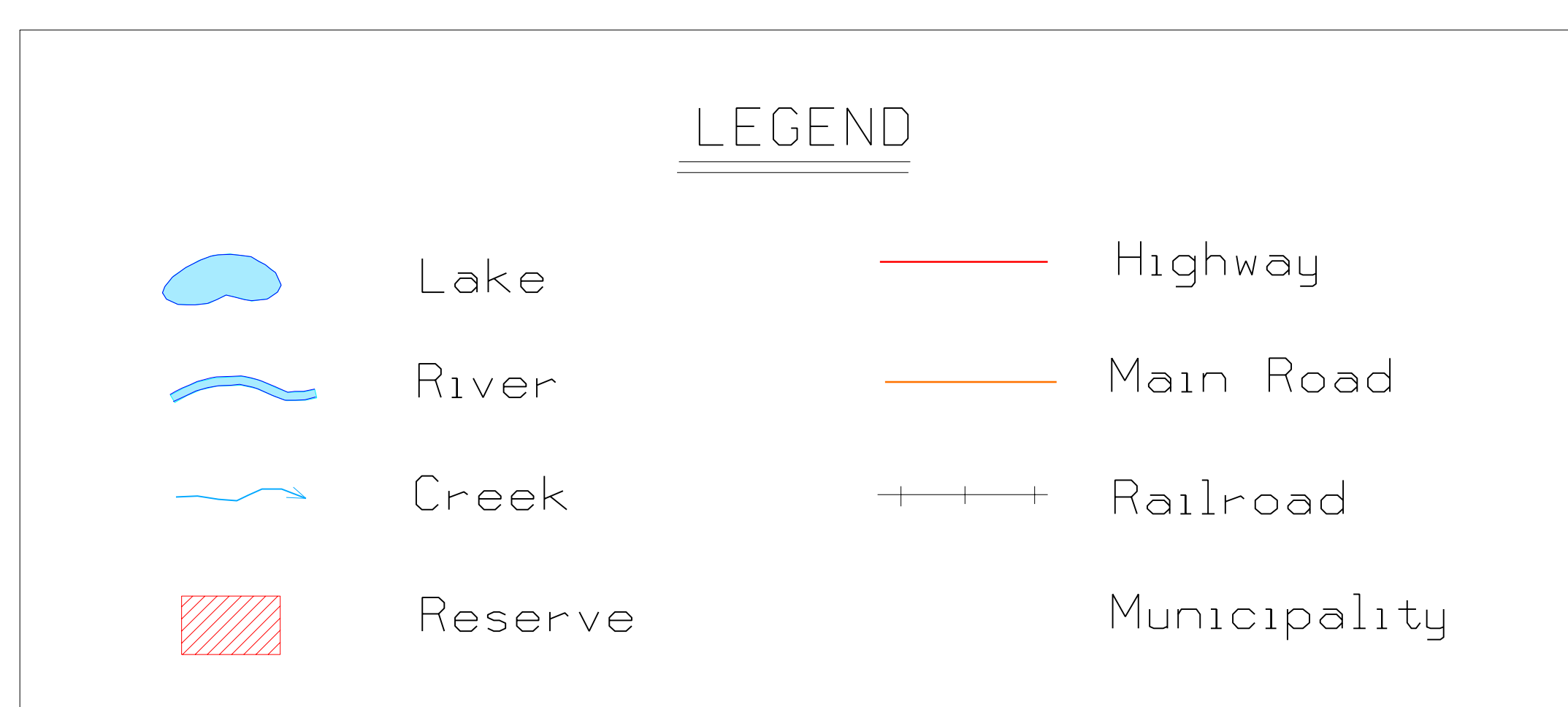
Date Drawn: February 15, 2006

Map 2.4 - Nak'azdli First Nation Traplines



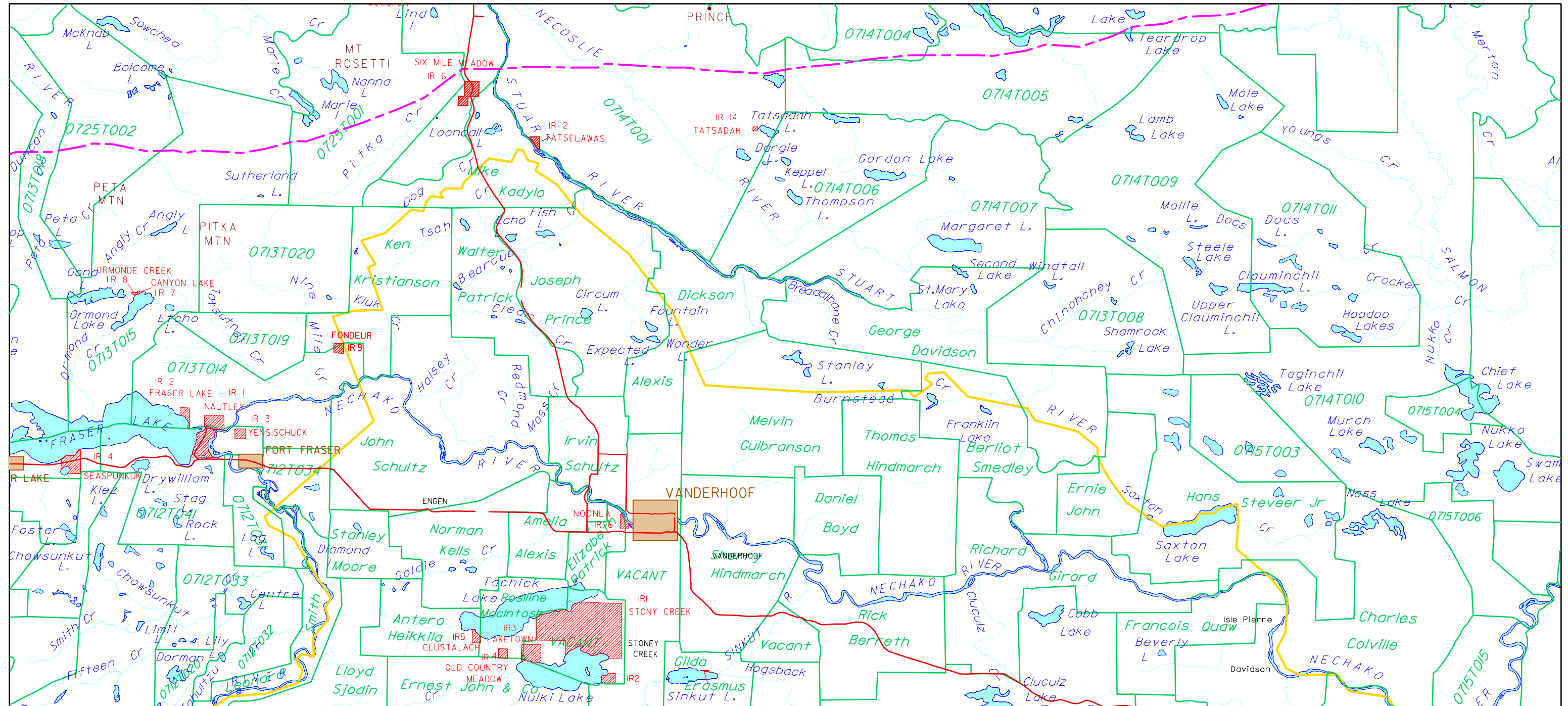
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Proposed Pipeline Corridor



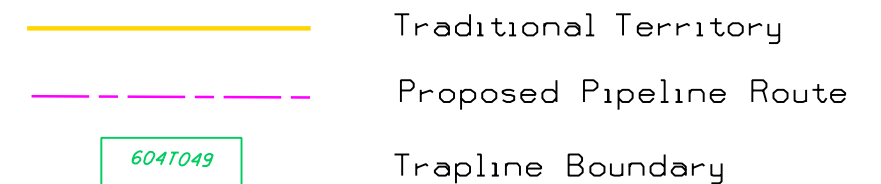
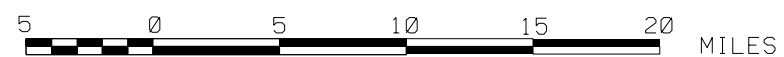
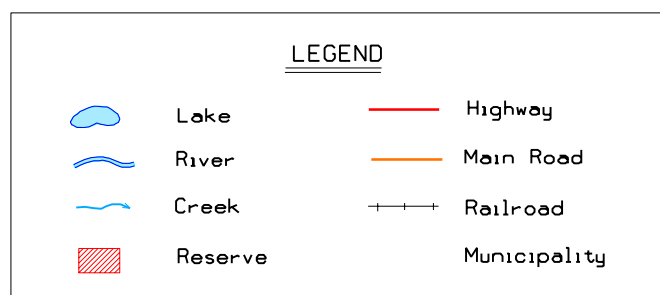
Date Drawn: March 12, 2006

Map 2.5 - Saik'uz First Nation Traplins



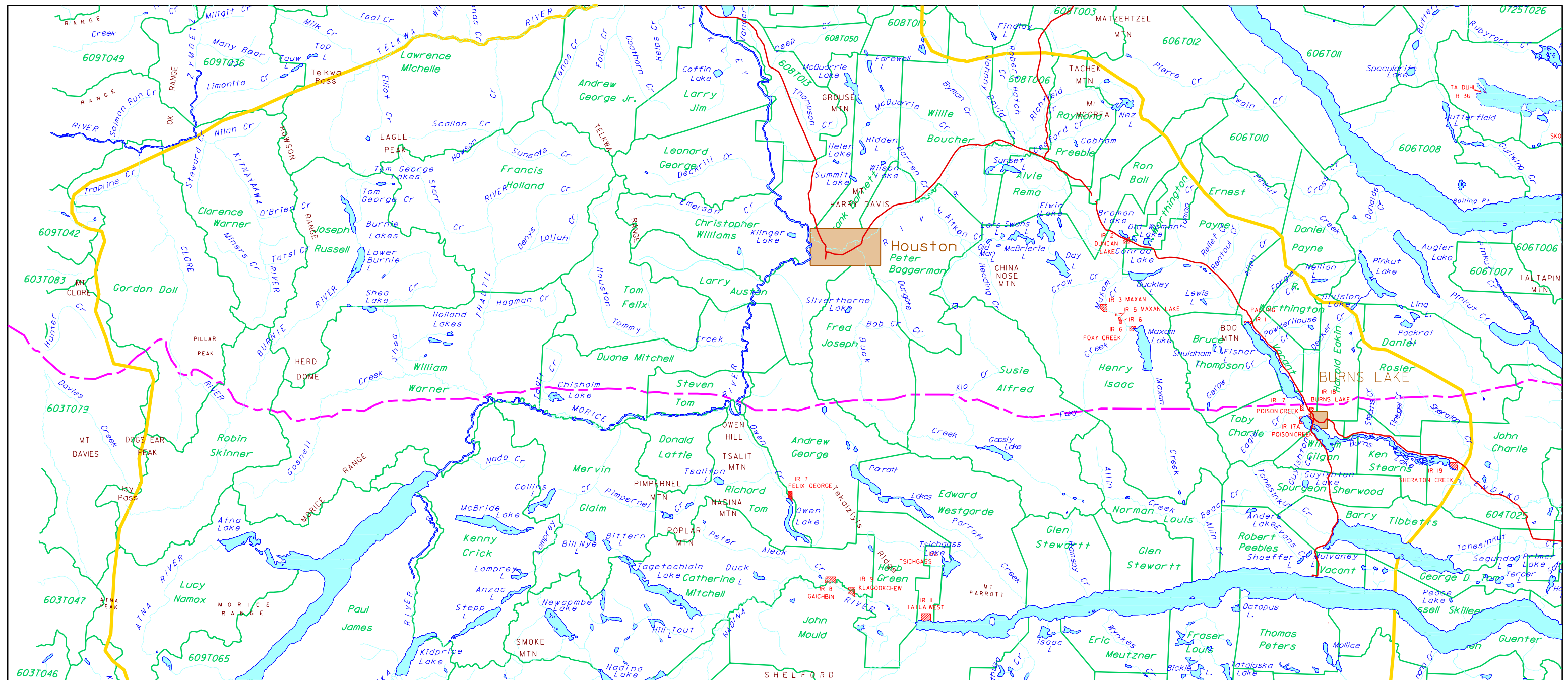
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Proposed Pipeline Corridor



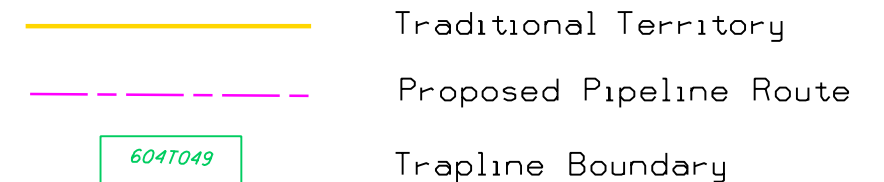
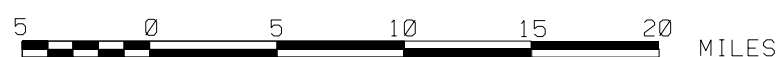
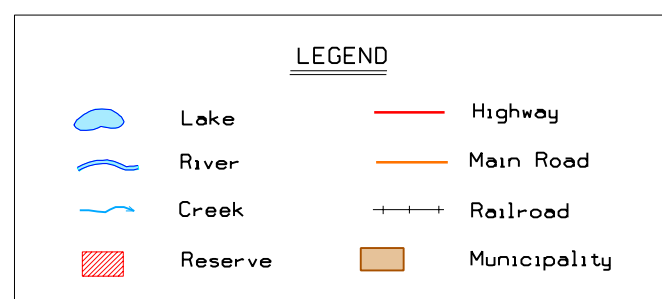
Date Drawn: February 17, 2006

Map 2.6 - Wet'suwet'en First Nation Trail



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Proposed Pipeline Corridor



Date Drawn: February 5, 2006

Unfortunately the archaeological studies of the Carrier Sekani territories have been relatively limited. Work done in the territories of the Southern Carrier by Fladmark estimates that the Carrier region has been inhabited for at least 4,000 years.¹⁸ He suggests that the richness of the salmon harvest, notwithstanding cyclical variations and environmental disruptions, led to social complexity within the interior areas before similar complexity was achieved on the coast. The presence of cultural complexity amid cyclical variation and regional disparity suggest that trade provided stable food resources. With trade offsetting scarcity, culture could develop and social and economic stability prevail. Detailed studies have been done at the heritage site Chunlac¹⁹, which is of critical importance to the culture and spirituality of the Carrier people.²⁰ To the west, radiocarbon dates of occupation sites near Moricetown Canyon (Kyah Wiget, Wet'suwet'en) show continual occupation for over 6,000 years.²¹ As indicated previously, the Carrier Sekani First Nations of the Carrier Sekani Tribal Council had extensive trade and intermarriage relationships with both their southern Carrier neighbours and their Wet'suwet'en Nation neighbours to the west.

Occupation, use and ownership of lands and resources has been documented by early explorers, fur traders, and more recently by anthropologists. The sources referenced above further demonstrate the existence of Aboriginal rights and title that have been expressed through oral history, place names, and use studies of the Carrier Sekani. The Carrier Sekani have undeniable rights to the land in question for the Gateway Pipeline. This is evidenced by the existence of historical village sites, hunting, trapping, fishing, gathering, spiritual and ceremonial sites, and the extensive network of trails that encase the numerous *Keyoh* of the Carrier Sekani. The value of each individual site is directly linked and dependent on the value and integrity of all sites as a whole.

The Carrier Sekani have used nearly every available avenue to pursue the protection of their Aboriginal title and rights, primarily through negotiations with government and industry. A key milestone of this continued effort is the filing of the *Carrier Sekani Statement of Claim in 1982*. This was accepted by the Government of Canada, and ethnographic data on the territories and governance of the Carrier Sekani was verified through claims analysis. Boivin wrote:

The Carrier people lived directly north of the Chilcotin, in the Valley of the Upper Fraser, Blackwater, Nechako and Bulkley rivers and around Stuart and Babine Lakes up to the borders of Bear Lake. The Carrier territory lies partly within the Coast Range mountain system and partly within the Interior Plateau. In the Coast mountain area there are deeply entrenched valleys and where low rounded mountains occur, broad u-shaped valleys. The Nechako Plateau, which encompasses the bulk of the area, is the

¹⁸ Knut Fladmark. *British Columbia Prehistory*. Ottawa: National Museum of Man, 1986.

¹⁹ Chunlac is the Yinka Dene name for the site; Chinlak has been used by anthropologists and scholars who generally follow the writings of Fr. Morice. Yinka Dene pronunciation according to oral historian Bernadette Rosetti, descendant to Chief Kwah who held hereditary title to Chunlac.

²⁰ J. Sewell. *The Archaeology of Central British Columbia*. Vancouver: University of British Columbia, 1950.

²¹ Sylvia Albright. *Archaeological Evidence of Gitksan and Wet'suwet'en History: Report Prepared for the Gitksan Wet'suwet'en Tribal Council*. Hazelton, 1987.

*part of the larger Interior Plateau region. The Nechako Plain, which is part of the Fraser River basin, lies on its eastern flank, extending over a wide band from Fort Fraser to a point east of Prince George.*²²

In addition to verifying the claim of the territory, the Government of Canada also verified the Carrier Sekani traditional system of governance, as follows:

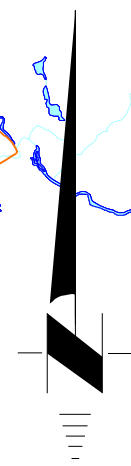
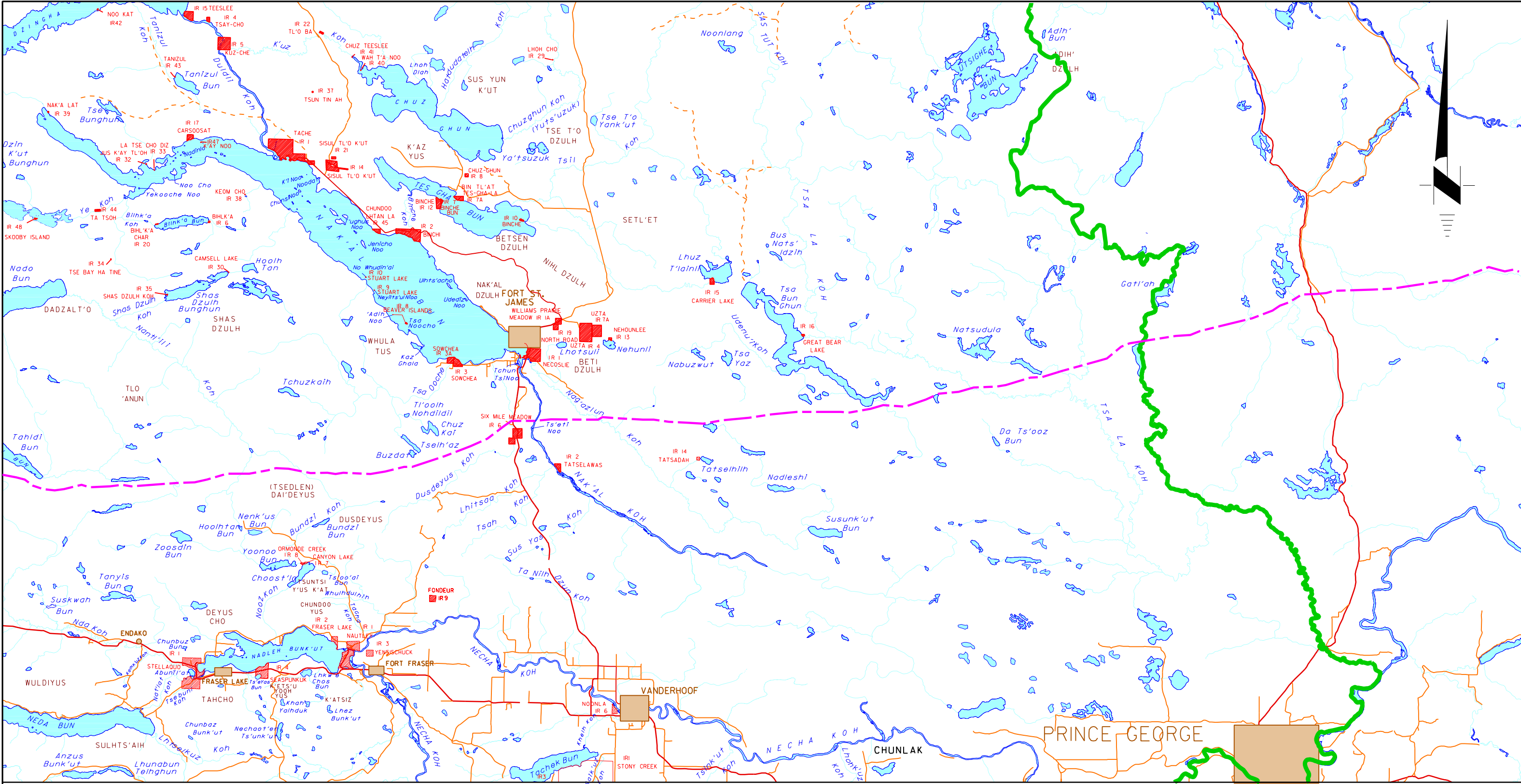
*The Upper Carrier Society was very complex. The Western sub-tribes around Stuart, Babine and Fraser Lakes were organized into five (six) phatries. The territory of each sub-tribe was divided among the phatries and further subdivided among the clans. In consequence every district and every fishing place was claimed by some clan and considered property of its chief, who supervised its use for the benefit of his fellow clansmen and retainers. Yet the final ownership rested with the entire phatry, whose head man (i.e. chief of the principal clan) would temporarily allot the area to some other clan and assign its usual possessors to another district. Even a chief rarely dared to act without consulting the clan chiefs in his phatry and generally also the chiefs of other phatries.*²³

The above statements further verify that which has been documented by anthropologists, and has been consistently put forth by the Carrier Sekani.

The Aboriginal title and rights of the Carrier Sekani is also evidenced by the naming of the plants, trees, animals and fish of the territories. The act of naming imbues the landscape with the Carrier Sekani concepts of ownership and access, similar to the systems of *Keyoh* and *Bahlats*. Moreover, where plants are identified for their medicinal value, they also establish their necessity for the well-being of the Carrier Sekani. Map 2.7 and Map 2.8 show the proposed Gateway Pipeline route with some of the place names of the Carrier Sekani.

²²Jean B. Boivin. *Review of the Carrier Sekani Comprehensive Claim*. Indian & Northern Affairs Canada, Office of Native Claims, August 13, 1982.

²³ Boivin, emphasis added.



Map 2.7
Carrier Sekani Tribal Council - East

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Proposed Pipeline Corridor

LEGEND

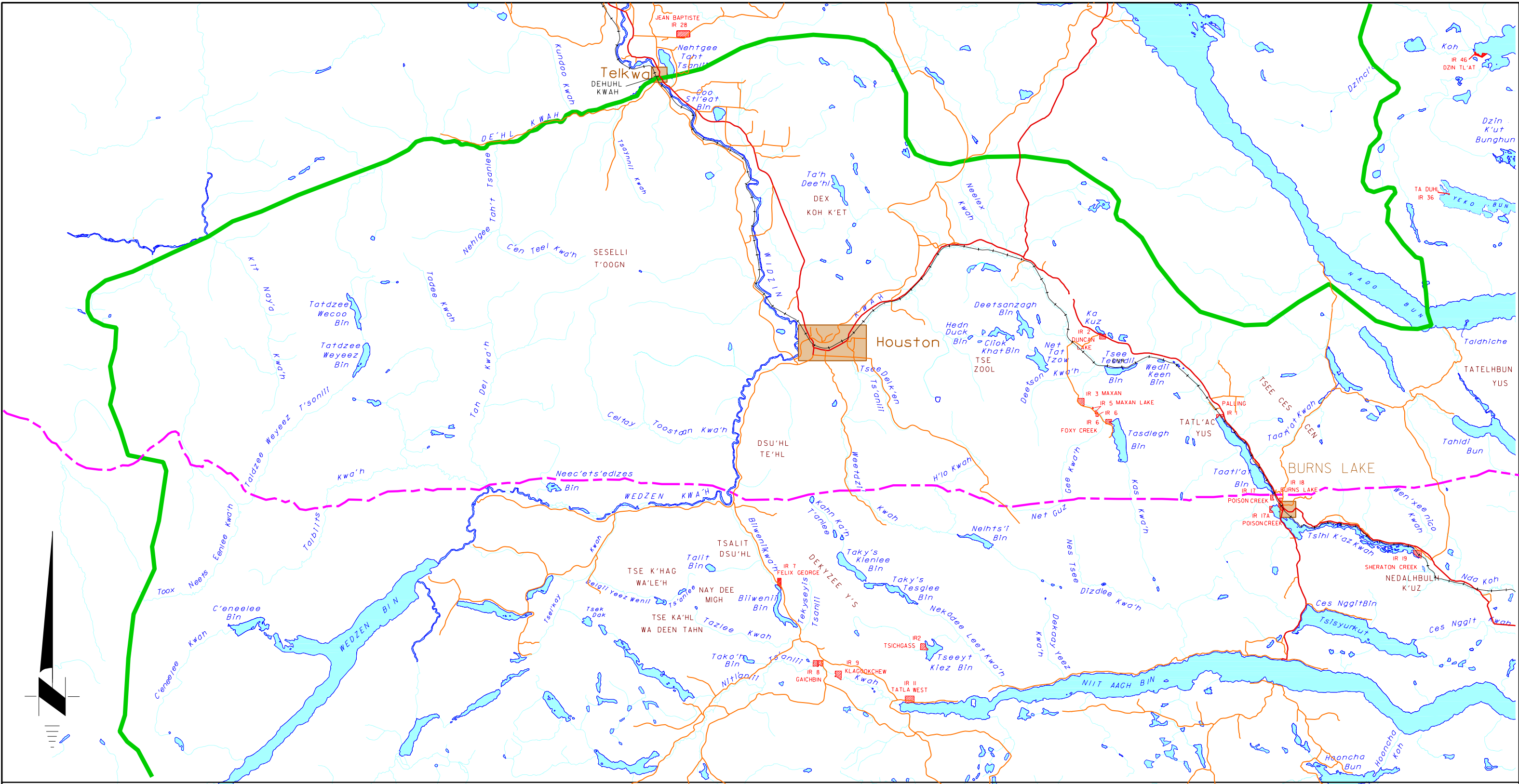
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|--|---------|--|--------------|
| | Lake | | Highway |
| | River | | Main Road |
| | Creek | | Railroad |
| | Reserve | | Municipality |

DATE: APRIL 2006

CSTC Boundary
 Proposed Pipeline Route

5 0 10 20 30 KILOMETRES

5 0 5 10 15 20 MILES



Map 2.8
Carrier Sekani Tribal Council - West

ENBRIDGE

Proposed Pipeline Corridor

LEGEND

- | | | | |
|--|---------|--|--------------|
| | Lake | | Highway |
| | River | | Main Road |
| | Creek | | Railroad |
| | Reserve | | Municipality |

DATE: APRIL 2006

CSTC Boundary
Proposed Pipeline Route

5 0 10 20 30 KILOMETRES

5 0 5 10 15 20 MILES

2.8 ABORIGINAL RIGHTS AND TITLE, AND THE DUTY TO CONSULT

Because of the prior occupation of Canada by aboriginal peoples, section 35 of the *Constitution Act, 1982* gives constitutional protection to the “existing aboriginal and treaty rights of the aboriginal peoples of Canada.” Canadian constitutional law recognizes that aboriginal people have rights of ownership over the land and its resources, and that this ownership, or aboriginal title, “encompasses the right to exclusive use and occupation of land... the right to choose to what uses lands can be put, ... and third, that lands held pursuant to aboriginal title have an inescapable economic component” (*Delgamuukw v. British Columbia*, [1997] 3 S.C.R. 1010, para. 166). Moreover, the law recognizes that aboriginal rights, such as hunting and fishing, are priority rights, and take precedence over non-aboriginal activities (*R. v. Sparrow*, 70 D.L.R. (4th) 385 (SCC)).

The law also protects these rights in the interim of their final resolution. Recognizing the protracted period involved in bringing this ownership and these rights within the rubric of proof at common law or resolution by treaty, the Supreme Court of Canada has said: “When the distant goal of proof is finally reached, the Aboriginal peoples may find their land and resources changed and denuded. This is not reconciliation. Nor is it honourable.” Therefore, when the Crown knows of the potential existence of an Aboriginal right or title and contemplates activity that might adversely affect it, the Crown has a duty to consult with the First Nation about these potential impacts, and to accommodate them where appropriate.

Most importantly, this consultation must be meaningful consultation, and the honour of the Crown must be engaged at every stage. Depending upon the strength of the First Nation’s claim, and the degree of infringement proposed, the Crown’s duty to consult and accommodate may be extensive—meaningful consultation must also entail the possibility that, through consultation, the Crown comes to understand that in the circumstances, it cannot let the proposed infringement proceed. The honour of the Crown is not “mere incantation” (*Haida Nation v. British Columbia (Ministry of Forests)*, [2004] 3 S.C.R. 511, para. 16), and the Crown does not have a unilateral right to exploit claimed resources, to deprive aboriginal claimants of the benefit of claimed resources, nor to proceed with proposed infringements to claimed rights or title (*Haida*, para. 27).

2.9 PLANTS, FISH, ANIMALS, AND MAMMALS OF SIGNIFICANCE TO THE CARRIER SEKANI

For the Carrier Sekani, the concept of Aboriginal rights and title is integrated with the beings that share the territories with the people – the fish, plants, animals, trees, birds and all living creatures.

Just as the Dakelh names of places illustrates the use and ownership of land, so too the Dakelh names of fish, plants, animals etc are markers of Aboriginal rights and title.

The transfer of knowledge of the environment through oral tradition is the central feature of title and rights.

While the recognition of Aboriginal title and rights through the Canadian courts and the constitution is necessary for their protection, the source of these rights is the relationship between the Carrier Sekani and their environment. This is indicated in the passage seen on the right from Burns Lake Band Elder, Peter John.

The following section identifies the Dakelh names for the living creatures of the territories that would potentially be affected by the proposed pipeline project.

Do you know how title is given? It comes from grandparents. See Grandfather walk all over, everywhere, fix his trapline up there, see all kinds of birds going up there, while he's walking; he's not hunting, he's fixing his trapline, trail, cabin, stuff like that. He sees birds, see animals there; when he comes back home he tells his grandmother all these stories, I seen this, I seen that over there, got a name for that; bring that back to grandmother's brains, store it there; the grandchildren come around, and gather them all up, ask them questions

That's where the title come, birds, animals, trees, leaf, stream, meadow, the kind of things that they see; we listen to them; see, that's the reason why in Carrier Territory from Lheidli Dene in Shelley to Hagwilget, you don't see no totem poles of any kind, nothing, it's the Gitxsans they do that. Carrier people, they're story tellers, that's where the title comes from, grandfather, you see all kinds of birds in there, it goes north, south, east, and everywhere.

That's how I got my name, my Indian name is Goosih, Goosih means whiskeyjack; lots of them all over, he's a guardian of that forest, tells the animals up there you're coming, when you get up there he tells you where the animal is; that's the name my grandmother gave me, that's how we get that Aboriginal title. The rights are there right now; everywhere you go, you see rights, moose, deer, anything, lakes, streams, meadows; the rights are there, you're just born into it. Title comes a little bit later; sometimes you get baptized in the Catholic Church, that title you're blessed with it, that's the way it works; that's the way Aboriginal Title works.

-Peter John, Burns Lake Band

Selected Carrier Sekani Plants on the Proposed Gateway Corridor²⁴

Tonics and General Medicine:

- *Yun K'unulh'a* (Labrador Tea)
- *Nuwus Chun* (Soapberry)
- *Tan K'alhtsul* (Wild Raspberry)

Poultices, Washes or Lotions for Wounds, Burns, Infections, Ulcers and Sores:

- *K'us* (Mountain Alder)
- *Ts'ootsun* (Balsam/Subalpine Fir)
- *Sus Mai Chun* (Black Twinberry)
- *Chundoo* (Jack Pine/Lodgepole Pine)
- *Tl'ughus Yaz* (Trembling Aspen)
- *K'endulk'un* (Red Willow)
- *Ghusbunt'an* (Plantain)

Medicines for Colds, Coughs, Flues, and other Respiratory Conditions:

- *Ts'ootsan* (Balsam/Subalpine Fir)
- *Chundoo* (Jack Pine/Lodgepole Pine)
- *Tl'ughus Yaz* (Trembling Aspen)
- *Tse'ul* (Sage)
- *Khas T'an* (Fireweed)
- *Kl'ukwuszih* (Horsetail)

Medicine for Stomach:

- *Whus Ghaih* (Wild Rose)

Laxatives:

- *Tsasdi Mai* (Wild Black Currant)

Medicines for Kidney and Urinary Conditions:

- *Datsan 'Algut* (Juniper)
- *Dunih T'an* (Kinnikinnick)
- *Netsi'ul* (Tamarack)
- *Dugloos Mai Chun* (Western Chokecherry)

Medicine for Arthritis:

- *Whus Ghaih* (Wild Rose)

Medicine for Cancer:

- *K'us* (Mountain Alder)
- *Nuwus Chun* (Soapberry)

²⁴ As with other Dakelh names used in this study, these names are subject to variation in dialect. The majority of these are in the dialect of the Saik'uz.

Medicine for Blood Pressure:

- *Netsi'ul* (Tamarack)

Medicine for Purification:

- *Tse'ul* (Sage)

Medicine for Headache or Toothache:

- *K'endulk'un* (Red Willow)
- *Encholby* (Yarrow)

Medicine for Easier Childbirth:

- *Dunih T'an* (Kinnikinnick)
- *Tan K'alhtsul* (Wild Raspberry):

Medicine for Menstrual Cramps:

- *Dunih T'an* (Kinnikinnick)
- *Tan K'alhtsul* (Wild Raspberry)

Medicine for Prostate Problems:

- *Kl'ukwuszh* (Horsetail)

Medicines for Bone Sprains and Fractures:

- *Ts'ootsan* (Balsam/Subalpine Fir)
- *Datsan 'Algut* (Juniper)

Plants of Nutritional Value:

- *Chundoo* (Jack Pine/Lodgepole Pine)
- *Whus Ghaih* (Wild Rose)
- *Dogha* (Black Tree Lichen)²⁵

Berries

- *Dunulhgus* (Saskatoon Berries)
- *Yuntumai'* (Low-bush Blueberries)
- *N'ut'ankal* (Raspberries)
- *Ningwus* (Soapberries)
- *Dukdinkal* (Thimble berries)
- *Duje* (Huckleberries)
- *Tsalhtse'* (High-bush Cranberries)
- *'Uyak'umai* (Low-bush Cranberry)



Dunulhgus (Saskatoon Berries) gathered on the Stuart River.
Photo courtesy of Vincent Prince. 2004.

²⁵ Jane Young and Alex Hawley. *Plants & Medicines of Sophie Thomas: Based on the Traditional Knowledge of Sophie Thomas, Saik'uz Elder and Healer*. Prince George: UNBC, 2004.

Commonly Harvested Fish Species of the Carrier Sekani

- *Bit* (Char)
- *Dugoos* (Golden Suckers)
- *Duk'ai* (Rainbow Trout)
- *Gesul* (Kokanee)
- *La Cho* (Sturgeon)
- *Lhukw* (Whitefish)
- *Talukw* (Sockeye Salmon)
- *Tsintel* (Ling Cod)

Commonly Harvested Fur Bearing Mammals of the Carrier Sekani

- *Booscho* (Cougar)
- *Chunih* (Marten)
- *Chunicho* (Fisher)
- *Chuntulhi* (Coyote)
- *Dune eza* (Porcupine)
- *Dutni* (Marmot)
- *Goh* (Rabbit)
- *Nahbai* (Weasel)
- *Nanguz* (Fox)
- *Noostel* (Wolverine)
- *Teschus* (Mink)
- *Tsa* (Beaver)
- *Tsis* (Otter)
- *Tsaluk* (Squirrel)
- *Tsek'et* (Muskrat)
- *Wasi* (Lynx)
- *Yetsts'e* (Deer)
- *Yus* (Wolf)

Commonly Harvested Large Mammals of the Carrier Sekani

- *Duni* (Moose)
- *Shus* (Grizzly Bear)
- *Sus* (Black Bear)

Selected Waterfowl of Importance to the Carrier Sekani

- *Pooldooz* (Fish Ducks)
- *Besk'e* (Gull)
- *Dadzi* (Common Loon)
- *Delh* (Crane)

- *Khoh* (Canada Goose)
- *T'acho* (Mallard duck)
- *Tsincho* (Trumpeter Swan)

Birds of Importance to the Carrier Sekani

- *Dihcho* (Blue Grouse)
- *Kaza* (Ptarmigan)
- *Nat'oh* (Spruce Grouse)
- *'utsut* (Ruffed Grouse)
- *Sbalyan* (Bald Eagle)
- *Datsan* (Common Crow)
- *Datsancho* (Raven)
- *Gwuzeh* (Whiskey Jack)
- *Teh gwuzeh* (Blue Jay)
- *Duchundulkw'uz* (Woodpecker)

2.10 SELECTED ACTIVITY SITES OF THE CARRIER SEKANI

As noted above, the entire *Keyoh* is essential to the survival of the Carrier Sekani people and culture. The following list of activity sites is not an exhaustive list of the Aboriginal title and rights of the Carrier Sekani, rather it is an overview of the areas that would be impacted by the pipeline, based on interviews with Elders and *Keyoh* holders and previously documented use.

Because the pipeline would cross many streams and rivers in the territory of the Carrier Sekani, numerous references are to an entire river, stream or watershed.

The activity sites follow the east-to-west direction of the proposed pipeline route.

Muskeg River to Stuart River – Nak'azdli Territory

- Trap for beaver at Muskeg River. Trap for smaller animals like weasels and minks around McDougall River also.
- Trail from Carp Lake to Slender Lake.
- Trapping cabin on northwest shore of Mossvale Lake.
- Fishing for Salmon in Salmon River: Chinook, Coho, Trout.
- There's trails all over the southern side and northern side of Salmon River. As it goes east of Great Beaver Lake.
- Graveyard on Indian reserve 16 on Great Beaver Lake and another graveyard on the north tip of Great Beaver Lake. Lots of graveyards on the east of Great Beaver Lake, specifically around where the proposed pipeline is.
- There's a trail from Nak'azdli on through Carrier Lake to Salmon River, next to Carp Lake and then to McLeod Lake.
- Necoslie River is used for fish and moose.
- Historic villages at Beaver Lake (one at west end, one at the outlet, and the other at the south shore).
- Cabin on mouth of Beaver Creek.
- There are numerous trails from Beaver Lake to Terrapin Lake and to other lakes in the area.
- Gathering area in southern most tip of Great Beaver Lake.
- Large historic village at Nahounly Creek, and one at Carrier Lake.
- Spad Lake, *Lhotsuli* Dakelh name. Spawning season in March, a creek running from the lake. *Tehlmuck* (Peamouth white fish). Around that creek, animals like the mink, and crows would gather eating the fish.
- *Nooyiz* (Long Island) at the south end of Stuart Lake is major site for fishing and fish preservation in the summer months.
- The Stuart River is one of our main fishing rivers for salmon, spring salmon, all kinds of salmon spawn in that river. The mouth of the Stuart River is an historical site of the ceremony for welcoming and honouring the salmon back from its journey to the ocean.
- All through the seasons fish spawn. Springtime is rainbows then around November whitefish, September char. All different varieties of fish spawn into that river. Sturgeons are really disappearing in the Stuart River.



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Title: "Cleaning Salmon, Stuart Lake, Aug 1909".

Stuart Lake and Stuart River have provided the Carrier Sekani with fish for thousands of years.

- Dolly varden and trout spawn where Dog Creek flows into the Stuart River. Good fishing there.
- Sowchea Creek flows right through Stuart Lake. That's where all our fur bearing animals, moose, beaver are. Even kokanee go up there to spawn. Right at Sowchea where it runs out into the Stuart, in the fall we do our char season then in the spring we do our trout season.



Today, Carrier Sekani youth take part in cultural camps on the Stuart River and Stuart Lake. Photo Courtesy of Vincent Prince, 2004.

- The Prince outfit trapline right down to Sturgeon Point. They have cabins and use the river for fishing, hunting, trapping, berry picking and medicine.
- Spencer's Ridge is medicine picking site.
- Stuart Lake, that's where we get our drinking water. That's where we do our fishing in the fall, spring and summer.
- 9 Mile to Dog Creek: We use it at all times. Summertime we go up there and do fishing, moose hunting, berry picking, medicine. In spring we hunt beaver, winter we hunt for bears and animals.
- Sweatlodge on Dog Creek, sacred site.



Nak'azdli Elder Betsy Pius preserving salmon from the Stuart River, circa 1980s. Photo Courtesy of Nak'azdli First Nation.

- There's Pitka Creek that runs into the Stuart Lake again just west of Sowchea Creek. In this reach here where that pipeline is going, that's where we do all our berry picking.
- There is a trail from Sowchea to Nadleh.
- Spencer's Ridge is medicine picking site (bark, willows, different kinds of medicine).

- Just north of Marie Lake, we have two gravesites.
- There are two cabins we use at Nana Lake and Marie Lake.
- Grizzly along Dog Creek Road near pipeline route.
- There's an old trail that goes from Dog Creek to Nadleh River.
- Along Cunningham Forest Service road we have two trails.
- Good moose hunting just south of Marie Lake.
- Berry picking in the pipeline area, we do lots of berry picking north, south, and east of it. Huckleberries, and to the east is where we do soapberries and blueberries (Nak'azdli).
- Down the Stuart River it's going across the 6-Mile Meadow, which is 7-8 miles down the river. Everything that we live on (salmon, trout, spring salmon, moose, deer, elk, bear) is down there. We pretty much use the first 35 miles of the Stuart River every year. (Prince Family, Nak'azdli).
- Historically we had a camp down there which my dad was using since he was a kid. Right next to our camp is a site of an old village with a collection of cache pits there within walking distance. (Prince Family, Nak'azdli, near 6-Mile Meadow).
- Three historic villages on the banks of the Stuart River. One village at Gordon, Marguerite, and Thompson Lakes.
- We hunted from about 1.5 miles down the river to 32 mile our whole lives. (Prince Family, Nak'azdli).
- All of our kids hunt and fish down there (Stuart River), we bring our Culture Camp kids there, First Nations kids from numerous Carrier Sekani First Nations.
- All of our eagle feathers are collected down there (between 10 and 35 miles down the Stuart River, Prince Family).
- "Terry Prince had his camp just north of Dog Creek. Mom and Dad's ashes are spread out there. There is a monument built there by Fisheries. That's how sacred that land is. When we go down there, we're not walking on moss, branches and leaves, were walking on the ashes of our ancestors. Everything down there is sacred from the ground and water to the air." (Vince Prince, Nak'azdli)
- Along the eastside of the Stuart River there are spiritual sites. The exact location is protected and therefore undisclosed.

Downstream of the Stuart River – Saik'uz Territory

- Trail used at Noonla crossing overland to get to Nak'azdli.
- A trail goes from Vanderhoof Airport directly north to the Stuart River.
- Cultural camps today at Finmoore and Wedgewood near Chunlac. Finmore is about 1-2 km. upstream from Chunlac. Wedgewood is south of Saxan Lake on south side of Nechako.
- Wedgewood is run by Mary John's family, downstream from Finmoore located near train tracks on the southern side of the Nechako. Elders and youth do salmon fishing (spring, sockeye, and pink) hunting (moose and deer) and berry picking.
- Medicine gathering at Wedgewood.
- Cabin and smokehouse in the Wedgewood site.

- Finmoore is located on Finmoore Road. People go every year to hunt and fish for a couple months. Hunt moose, deer, bear. Fish mostly salmon. Sturgeon conservation efforts. Water is fluctuating a lot lately. Also good blueberry and blackberry picking here.
- Fishing at Ormond Lake and Oona Lake, Fraser Lake, Nautley.
- Cabin about ½ km upstream from Finmoore camp.
- Hunt a lot of bears along Nechako River.

Sutherland River to Shovel Creek – Nadleh Whut'en Territory

- *Natl'ali Koh* - "Everything Swims in it River", the Sutherland River. Fishing for salmon, steelhead trout, dolly varden trout, rainbow trout.
- The Nadleh/Babine Trail through Sutherland Valley. Used for transportation, hunting, trapping and fishing. On the eastern side of the Sutherland River.
- *Nyan Wh'eti* is a transportation trail from Fort St. James to Nadleh. For countless years prior to its use by the Northwest and Hudson Bay Companies, it was used for travel and trade, hunting, trapping, rabbit snaring, bark collection, plant gathering. It crosses the proposed pipeline in the area of the KP816 and KP817 stations.
- *Mudzih Koh* is the name for Duncan Creek.
- *Whool-tan* (Marie Lake) some burial sites and many cultural trails.
- Sutherland Trail used extensively for travel to hunting and fishing grounds.
- *Tlo Anun* (Mount Ott)– bears hunted there, many bear dens.
- At Zipper Lake there is good fishing, *Bun Yaz* – pipeline route just north of Zipper Lake.
- *Yiseh Cho* (Big Red Deer) – rare, live only in north Sutherland. Hunted on Bernadette McQuarry's trapline.
- Medicines are gathered everywhere in Bernadette McQuarry's trapline.
- Trail starts in the northwestern corner of IR #1 Nadleh Reserve to north of Etcho Lake. Our people have fishing grounds in Ormond Lake.
- Major moose habitat along the Sutherland River.
- Moose, deer and bear hunted along Sutherland River.
- Sutherland Trail used for trapping around Nadleh.
- "The area north of Nadleh reserve, which is Nadleh Village and the Sutherland Valley area. Before the trap line system came in, this area was hunting territories of Lts'umusyoo territory, which is their keyoh." (George George Sr.)
- We have two reserves now # 7 & 8 on the shores of Ormond Lake. From there a trail goes up west.
- There is a cabin in Ormond Lake and in west end of Peter Lake. There was a road branching off a trail they call Dog Creek trail, which runs from north east corner of Nadleh IR #1 runs north to Dog Creek, Fort St James. It connects to Highway 27 around Dog Creek, near Fort St James. This road to Ormond Lake branches off to the north up to Ormond Lake.
- There used to be an old trail from west end of Ormond Lake down to North Shore Fraser Lake.
- People from Nadleh Whut'en go berry picking just north of Fort Fraser.

- Louie George's cabin is located at a small lake with a large meadow at the headwaters of Shovel Creek. The cabin is located within the proposed corridor and is southwest of the proposed KP840 station.



Louie George's cabin is located at a small lake with a large meadow at the headwaters of Shovel Creek. The cabin is located within the proposed corridor and is southwest of the proposed KP840 station. *Photo Courtesy of TRACES Archaeology, 2006.*

Shovel Lake to Decker Lake - Burns Lake Band Territory

- “We have traditional territories between Co-op lake, Shovel Lake, and south side of Taltapin down to Endako River. All the land is important, we hunt moose and black bear in the fall. Hunting, fishing, and trapping is our culture.”
- Taltapin Lake is in the *Lhksilyu* –Cariboo trapline, the whole length of the lake and 2 or 3 miles west of Taltapin.
- Trapline along west side of Taltapin Lake has been clearcut already.
- Taltapin Lake has good fishing for char, trout, and lots of other fish.
- 8 Mile Creek has spawning grounds for trout, char, and other fish species. (lots of rocks on bottom, high bush on both sides). This flows into Shovel Lake.
- At 3 Mile Creek (out of Shovel Lake to the west), is where beaver babies learn to make houses.
- Shovel Creek has spawning grounds for salmon, trout and other species.
- Big Lake (halfway between Hannay road and eastern end of Taltapin) is good for fishing, resting spot along the trail.
- In Poison/Tibbets Creek area there is kokanee, white fish, squaw and graylings spawning grounds.
- Collect juniper, spruce, balsam, and raspberry for medicine at Priestly Hill. There is also an old trapping cabin here.
- Trapping for beaver and muskrat, as well as hunting for deer and moose at Martin Lake.
- Moose calving on the east side of Co-op Lake.

- Ice fishing for trout and white fish on Co-op Lake.
- Huckleberry and cranberry picking grounds at Co-op Lake.
- At Poison/Tibbets Creek there are deer hunting grounds.
- The salmon in the Endako River have been negatively impacted by the Endako mine, Babine Forest Products, and other development.
- The Endako River was a main water source for the people living at Sheraton.
- There are moose hunting grounds along the Endako River.
- Trapping for beaver, marten, weasel, fox, coyote, wolf, mink, muskrat, bear and lynx along the Endako River.
- Kokanee fish from Endako River were dried and traded with Moricetown. There are concerns now over the quality of them because of contamination from Endako mine and other development.
- Fishing for trout, white fish, lingcod, and grayling in the Endako River.
- Medicines gathered along the Endako River include juniper, balsam, chokecherries, and red willow.
- Hunting and trapping grounds on east end of Burns Lake.
- *Neta Bulh* (Sheraton Mountain) is berry gathering area for all berries but mostly huckleberries and raspberries where the mountain goes up. In other areas cranberries, saskatoons, and blueberries are picked near the mountain.
- At *Neta Bulh* there is hunting for black bear, moose, deer, one time a Kodiak/grizzly cross was caught there. There is also traditional medicine and food plant gathering.
- At Eagle Creek there is a natural spring that is used for drinking and cooking water. There is also an old cabin at One-Mile.
- Around Burns Lake there is fishing and hunting all year round.
- On the north side of Burns Lake is deer country, especially around Tintagel.
- The south side of Burns Lake is moose country, especially around Deadman's Island area.
- There are a lot of trails and Culturally Modified Trees on the south side of Burns Lake.
- Around the creek between Burns Lake and Decker Lake there is moose hunting and people go snowshoeing there.
- People like to go swimming around Crystal Lake.
- Trails along Poison Creek to Big Lake follow *Boos Cho Kwah* (Cougar Creek) to east end of Taltapin Lake.
- Trail from Shovel Creek to Endako River.
- At Poison Creek IR#17 there are wetlands that are habitat for ducks and calving grounds for moose.
- At Poison Creek IR#17A there are wetlands that are habitat for ducks and geese. There is one house there with a family of five, and they are building five more houses there. There is a sweatlodge there used for ceremonial purposes. The community is also looking to develop a culture camp and/or a treatment centre there.
- At Burns Lake IR#18 people carry out ceremonies, cleansing, smudging and singing sweat songs when there are problems in the community.
- Sheraton Creek IR#19 is used for hunting ducks and grouse. Used to be inhabited before many people died in the 1918 flu. There is still a log cabin out there.

Decker Lake to Morice Lake – Wet'suwet'en First Nation Territory

- Traditionally *Gitdumden* (Bear) Territory.
- Moose habitat everywhere but they are declining, endangered moose wintering grounds.
- Set fish nets at Morice River and Owen Creek juncture (*Tse Mi'kek'in*). There are also two old cabin sites: *Biw ni'kek'* and *Tse nin h'i*.
- On the Morice River (*Wendzen Kwa'h*: Deep Creek) fishing for salmon and steelhead.
- Berry picking for huckleberries around 20-31 km. on the Morice Forest Service Road.
- Owen Creek is known as *Biiwenil Kwa'h*: "Lots of Char Creek."
- Owen Lake is known as *Biiwenil Bin*: "Lots of Char Lake."
- People from all the surrounding territories would meet at Owen Lake before heading back to Hagwilget in the summer.
- At least 7 to 8 generations have been at Owen Lake, there is one cabin by the lake.
- Used to be winter houses (*hoyt-ya*) at the present day forestry campsite at Owen Lake and other traditional village sites.
- Around Owen Lake there are lots of bear, moose, deer, wolf, small fur animals like muskrat, weasel, mink, and otter.
- All kinds of berries picked at Owen Lake.
- Indian (Labrador) Tea in all the slew areas, especially from Morice Lake turn off to Owen Lake on hill side.
- Plant foods around Owen Lake include wild onions (*glol tsun*), wild potatoes (*lub'tek*), wild rice (*my'uk*), wild celery (*goos*).
- Fishing for char at Owen Lake, used to use fish weirs.
- At Houston Tommy Creek (*Celtay Toostaan Kwa'h*) there used to be cabins but Ministry of Forests moved them. Set nets and dry fish—salmon and trout there. Trapping for marten, lynx, squirrel, fox, bear, moose.
- At Mount Morice there is good huckleberry picking. There are a lot of bears and grouse, especially blue grouse, in this area. People camp in the area for berry picking season.
- Berry picking at Nelgi Mountain (*Nelgi Dzilh*: "Something is coming down the mountain") for huckleberries, soapberries, and blueberries.
- Trapping around Maxan Lake (*Tasdlegh Bin*). Three Indian Reserves at Maxan Lake and one at Foxy Creek. (Maxan IR#s 3, 5, 6, and Foxy Creek IR #6).
- Used to be a big house by Maxan Lake and one two miles down from the lake



Moose habitat near *Tasdlegh Bin* (Maxan Lake Indian Reserve). The swamp in this area is also habitat for other wildlife and waterfowl. Members of the Wet'suwet'en First Nation gather Labrador tea in this area. Photo Courtesy of Carla Lewis, May 2006.

- At the mouth of Maxan Creek (*Kas Kwa'h*) red salmon come up, fish for them and dry them there.
- Salmon comes into the territory from the Fraser, Nadina, and Nanika Rivers. Spawning in Maxan Lake.
- Lots of fish, moose, and berries around Maxan Lake. This would be a good spot for a culture camp for children and youth.
- There is a trail along west side of Maxan Creek to Francois Lake.
- Trout fishing in Maxan Creek.
- There is an old trapping cabin at Swan Lake (*Cliok Khat Bin*: “Lots of Fish Lake”). Trapping for wolf, coyote, fox, lynx, marten, beaver and muskrat. There used to be a lot of moose here, but there aren’t too many now.
- There are a lot of trails around Day Lake (*Net Tat Tzow*: “Foggy on Top of the Lake”). Catch rabbits and other animals there.
- Trapping, hunting for moose deer and bear and fishing at China Nose (*Chai Zo*: “Rock neck”). There is also lots of soapberries, saskatoons, and raspberries in this area. In the higher grounds there is mountain goat and grizzly habitat.
- Fishing at Elwin Lake (*Deetsanzagh Bin*).
- There is a cabin site at Chisholm Lake.
- There is a cemetery at Pack Lake.
- Lots of white fish, char, and ling cod in Poplar Lake.
- At Morice Lake (*Wedzen Bin*: “Deep Lake”) there is a spawning channel for spring salmon. A lot of bears there in August. People go there for camping.

SECTION 2.A

PRELIMINARY ARCHAEOLOGICAL OVERVIEW OF THE PROPOSED GATEWAY RIGHT-OF-WAY

Through the development of the Carrier Sekani Tribal Council Aboriginal Interests and Use Study, the tribal council sought to draft a joint report in collaboration with the Gateway archaeological consultants (I.R. Wilson). The Carrier Sekani Tribal Council authorized Enbridge/Gateway to conduct archaeological fieldwork in the Carrier Sekani territories for the 2005 season on the basis that:

“The AIA report for the CSTC SOI Area would then be prepared jointly by the CSTC archaeologist and the GEM team, and filed with the Province of British Columbia...”

It was the intention of the CSTC to ensure the involvement of community members in any field assessment carried out in the traditional territories, and to also ensure that any report produced reflects the interests of the Carrier Sekani. Despite efforts made by the CSTC archaeological consultants (TRACES), this collaboration was not achieved. It is therefore the position of the CSTC that any such report is neither a product of, nor endorsed by the Carrier Sekani.

The Carrier Sekani have significant concerns over potential impacts to archaeological sites along the pipeline corridor. This concern is exacerbated by the fact that few detailed archaeological studies have been done in this region. Without a comprehensive understanding and record of the archaeological sites within the territories, it is difficult if not impossible to assess the potential impacts of the proposed Gateway Pipeline on archaeological interests.

In a preliminary assessment, TRACES Archaeological Research and Consulting found the following:

- The proposed route crosses through the salmon spawning grounds and nursery watersheds that feed both the Fraser and Skeena River drainage systems. These are areas of extremely high archaeological significance.
- Archaeological sites are a cultural heritage resource of significance to the CSTC, avoidance of all sites within CSTC traditional territory is the first and most appropriate management strategy.
- There are numerous trails in the territories of the Carrier Sekani, many of which intersect with the proposed pipeline corridor. On Map 2.A.1 and Map 2.A.2 known trails are marked along the pipeline corridor at intersection points. Each number corresponds to the trail name in Table 2.A 1.

- Trail features undoubtedly represent corridors of high archaeological potential. Additional data collection regarding trails through CSTC traditional territory is required to accurately identify where further archaeological assessment is necessary.
- Culturally Modified Trees (CMTs) are commonly found along trail corridors in the central interior of B.C. The most common type of CMT found is the pine cambium stripping scar. These features can occur singly or in large, dense distributions of hundreds or even thousands of individual CMTs. A number of message trees, arborgraphs and aborglyphs have also been identified across the Nechako Plateau. It is important that any crews involved with survey in CSTC lands are familiar with interior CMTs and their characteristic morphologies.

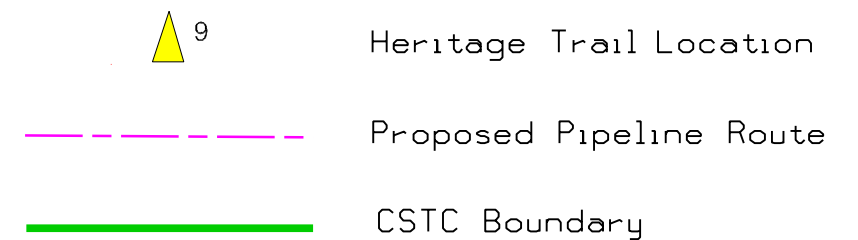
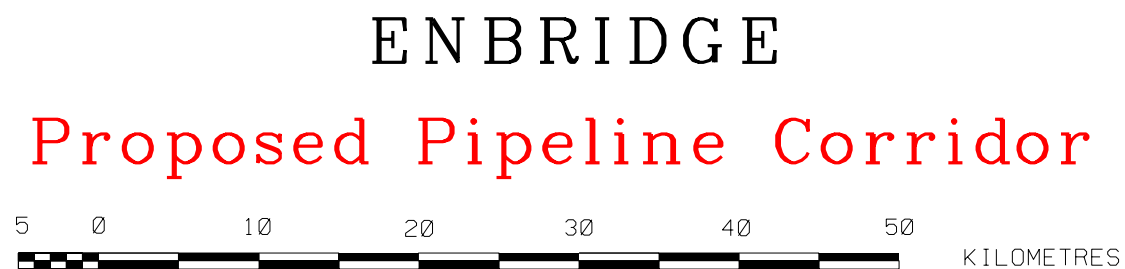
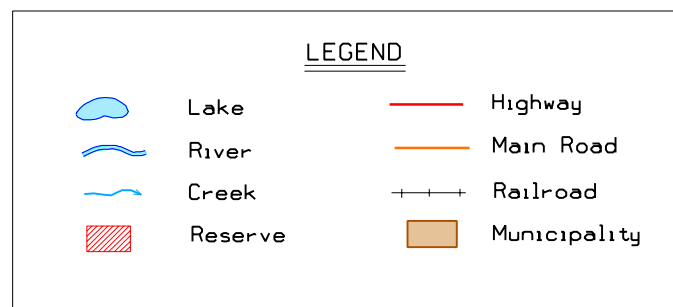
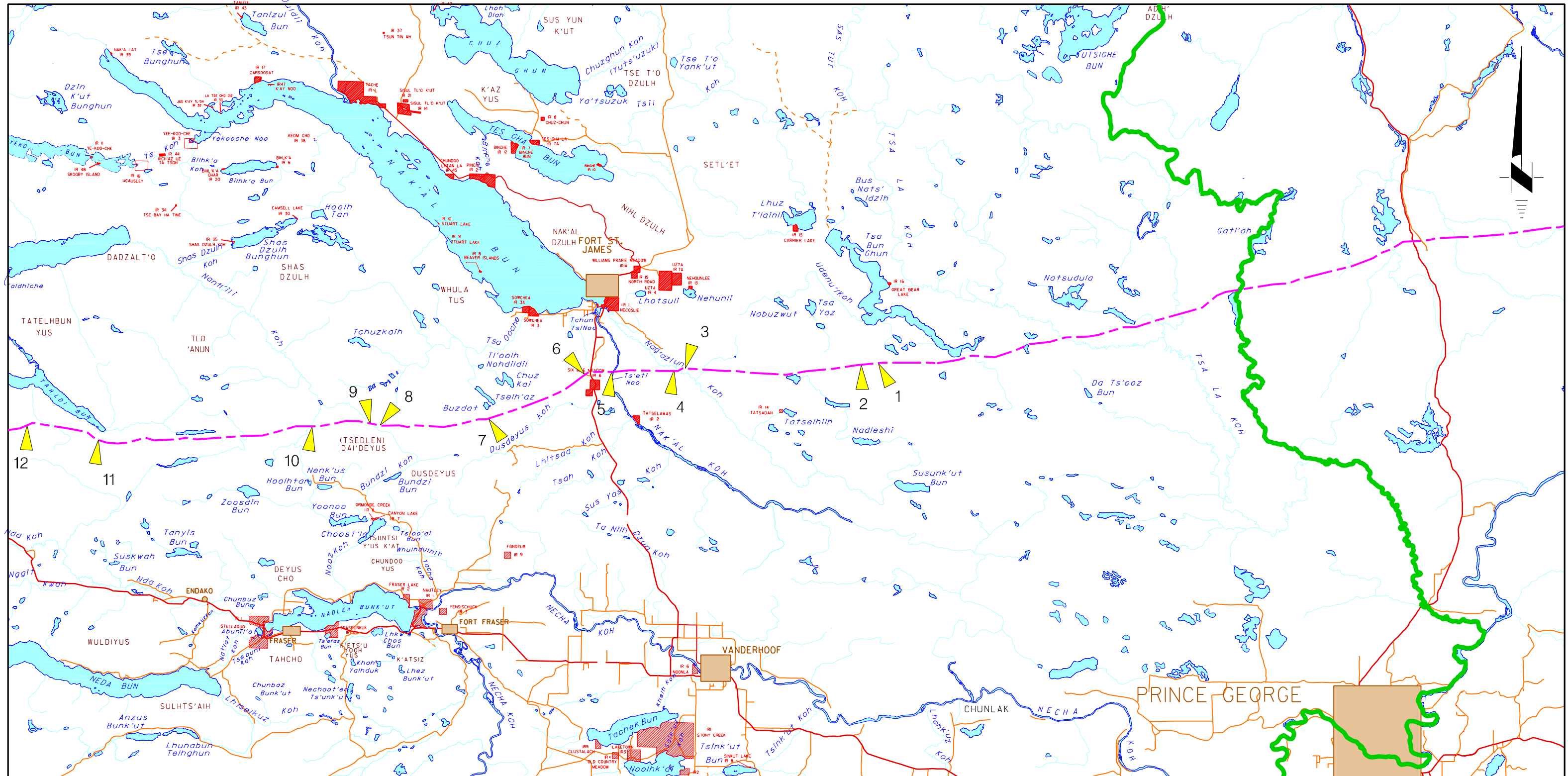


Nyan Wheti, "The Trail Across". Carrier Sekani trails mark corridors of high archaeological value and potential. Photo courtesy of TRACES Archaeology, 2006.

- The Gateway Pipeline route has not yet been finalized, thus it is not possible to conduct effective archaeological impact assessments with meaningful results.
- The 50m. buffer on the pipeline corridor is insufficient to protect areas with archaeological potential. The clearing of the pipeline would make adjacent lands and archaeological resources present susceptible to disturbance from tree blowdown. In addition, associated development activities like decking sites and other ancillaries to the pipeline will make a 50m. wide corridor insufficient.
- GPS coordinates given by the company have not been consistently accurate. Because the study corridor is only 50m. wide, an inaccuracy of even a few metres can compromise results.

In order to properly assess the impacts on archaeological resources of the Carrier Sekani, a comprehensive overview study of the corridor using a sufficient buffer zone, is required with the meaningful involvement of the Carrier Sekani and their chosen archaeological consultants. Without a joint assessment, any results will be considered inadequate. The efforts to date to have joint assessment and reporting with the company on the archaeological resources of the Carrier Sekani have not been satisfactory, and extensive work is still required to arrive at an adequate assessment. To jointly carry out such studies the Carrier Sekani Tribal Council needs the appropriate resources to participate in field work and reporting.

Map 2.A.1 - Heritage Trail Crossings - East



Map 2.A.2 - Heritage Trail Crossings - West

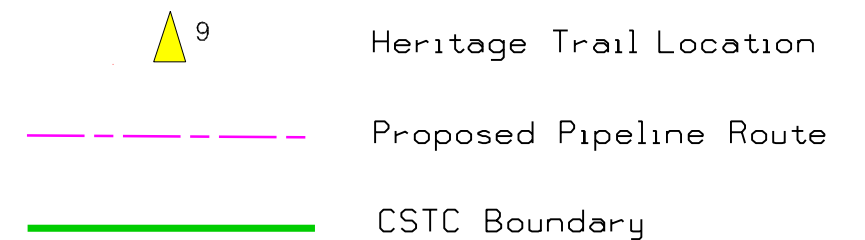
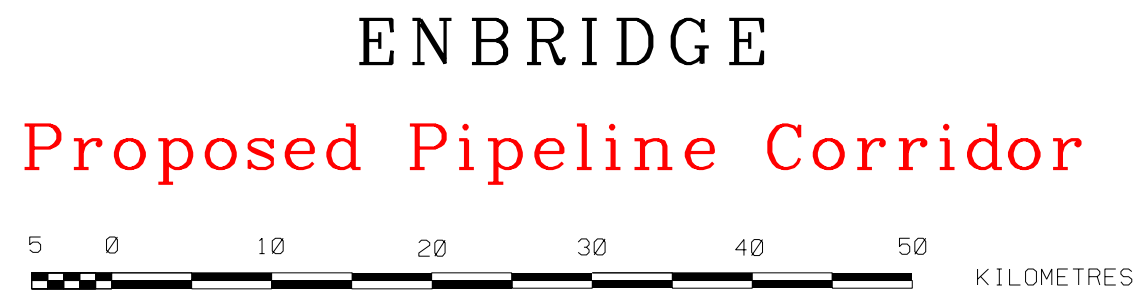
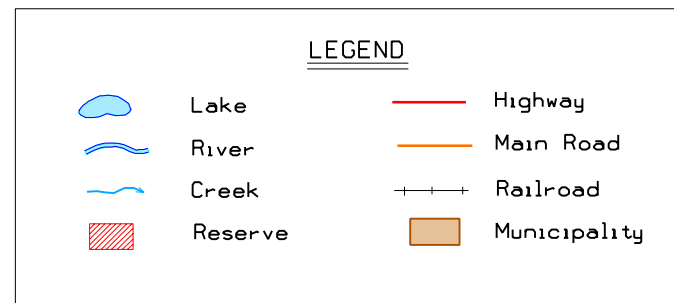
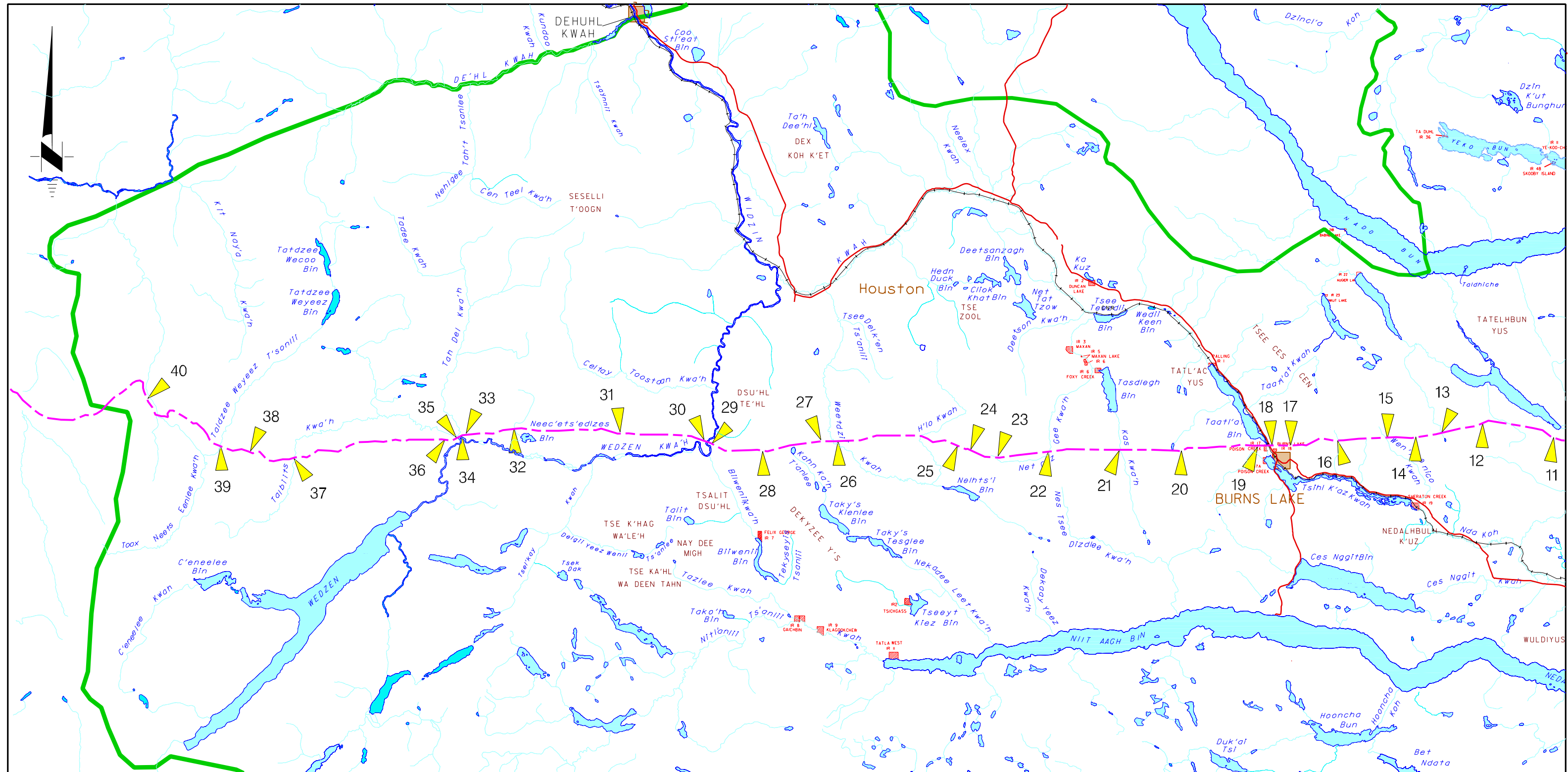


Table 2.A.1 Currently Known Carrier Sekani Trails Along the Proposed Gateway Pipeline Corridor

	Name of Trail or general transect info	~Point of conflict (km)	Surveyed	Identified in AOA	Further Work Recommended
1	Stuart Lake – Great Beaver Lake South Trail	764	No	No	Yes
2	Stuart Lake – Great Beaver Lake North Trail	766.5	No	No	Yes
3	Stuart Lake – Great Beaver Lake Trail	786-788	No	No	Yes
4	Omineca Trail, Noonla – Necoslie Trail	789-792	No	Yes	Yes
5	Stuart River Trail	797.5	Yes	No	Yes
6	Dog Creek Trail	801-803	No	No	Yes
7	Nyan Wheti, “The Trail Across”	815-816	No	Yes	Yes
8	Sowchea-Sutherland Trail	828	No	No	Yes
9	Sutherland Valley East Aboriginal Trail	829 - 830	No	No	Yes
10	Ormond Lake-Duncan Creek-Sutherland Valley Aboriginal Trail	838	Yes	No	Yes
11	Taltapin south Trail	864-865	No	No	Yes
12	Taltapin branch	874-875	No	No	Yes
13	Taltapin – Burns Lake Trail	878-880	No	No	Yes
14	Unknown trail	883.5	No	No	Yes
15	Sheraton Creek Trail	886.5	No	No	Yes
16	Burns Lake – Stearns Creek Trail	894	No	No	Yes
17	Burns Lake-Babine Lake Trail	899	No	No	Yes
18	Telegraph Trail (1866)	901.5	No	Yes	Yes
19	Decker Lake – Burns	902 - 904	No	No	Yes

	Lake Trails (4)				
20	Gerow Creek Trail	912 - 914	No	No	Yes
21	Un Kwa'h Trail	920-921	No	No	Yes
22	Foxy Creek Trail	929-931	No	No	Yes
23	Unknown Trail	936	No	No	Yes
24	Unknown Trail	940	No	No	Yes
25	Unknown Trail	942	No	No	Yes
26	Buck Creek Trail	958	Yes	No	Yes
27	Buck Creek – Parrott Creek Cutoff Trail	958.5 - 962	No	No	Yes
28	Morice River – Parrott Lake Cutoff trail	966 - 968	No	No	Yes
29	Morice River East trail	973.5	Yes	No	Yes
30	Morice River Trail West	974.25- 975.5	Yes	No	Yes
31	Morice River – Tommy Creek Trail	985	No	No	Yes
32	Tagit Creek Trail	999	No	No	Yes
33	Morice River Trail	1005 - 1007	Yes	No	Yes
34	Thautil River Trail	1006	Yes	No	Yes
35	Gosnell Creek Trail	1006 - 1008	No	No	Yes
36	Gosnell Creek – Morice River Cutoff Trail	1009	No	No	Yes
37	Gosnell Creek Trail	1028	Yes	No	Yes
38	Gosnell Creek – Burnie River Cutoff Trail	1029 – 1038 access to camp “Unyenni”	No	No	Yes
39	Burnie River Trail	1038.5	Yes	No	Yes
40	Clore River Trail	1050 - 1054	No	No	Yes

SECTION 3.0

LESSONS LEARNED: BROAD CONTEXT OF FIRST NATIONS' EXPERIENCE OF PIPELINE AND OIL AND GAS DEVELOPMENT²⁶

Introduction

In assessing the potential impacts of the Gateway Pipeline, Carrier Sekani Tribal Council member nations have requested a study of other First Nations experiences with pipeline and oil and gas development in their traditional territories. This section will set the context for the subsequent sections that identify the specific impacts that would result from the proposed development. Because all of the case studies indicated that pipeline development consistently opens up areas for oil and gas exploration and further development, this section looks at both pipeline development and oil and gas development.

Several case studies were done for this purpose, they include:

- Mackenzie Valley Pipeline
- Norman Wells Pipeline
- Trans-Alaska Pipeline (Fairbanks)
- Oil and Gas Development in Treaty 8 First Nations (Northeastern B.C.) Territories
- Development of the Alberta Tar Sands
- Oil and Gas Development in the Territories of the Lubicon Cree
- Oil and Gas Development, with a Focus on Royalties, in South Central Alberta

These cases of pipeline and oil and gas development show patterns of impacts to First Nations that cannot be ignored in the face of proposed pipeline development. Overall, the effects of building energy corridors through traditional territories have diminished First Nations communities' connections to their territories. The spin-off effects of this diminishment have been widespread. Access roads and infrastructure lead to more industrial development and the fragmentation of the landscape. Traditional trails became private roads. Trapping areas were fenced off, no longer accessible to trappers. Communities live in fear of the debilitating and lethal effects of sour gas or the devastating effects of pipeline failures.

Overall, First Nations have not predominantly benefited from this development. Generally, the skills that many members of First Nations communities hold at the outset of pipeline and oil and gas development are only sufficient to secure sporadic and seasonal employment – and even access to this type of employment is temporary during pipeline construction. Training efforts to catch this temporary job market were often “too little too late.”

Furthermore, there were serious costs to communities that came with the mere proposal of development or exploration. First Nations were in conflict with government, regulators and proponents, but there was also conflict and political disharmony within First Nations communities themselves. Development of the magnitude entailed in pipeline development and

²⁶ This section is a summary of the following:

Wendy Aasen and Geoffrey E.D. Hughes. *Development Leads to Development: Research Findings Related to the Socio-Economic Impacts of Oil and Gas Development on First Nations Communities*. Carrier Sekani Tribal Council, 2006.

oil and gas exploration inherently undermine traditional values and ways of living with the land. That is, communities have to support shifts in values and ways of being to accommodate these kinds of developments. Even the exercise of determining whether to oppose a project or to allow it so as to secure some economic benefit, resulted in division and political disharmony in several cases. This was so, no matter the economic incentives the community secured from the development – partly because inevitably some members of the community benefited where others suffered. Some communities were thrown into crisis by the jarring shift from poverty to sudden prosperity during oil and gas boom times.

3.1 ISSUES AND IMPACTS

Key issues and impacts that recurred throughout the case studies include but are not limited to:

Regulatory Processes and Decision Making

- First Nations knowledge of potential impacts has been consistently devalued as unscientific, despite the fact that many predicted impacts eventually result.
- First Nations participation in government-led regulatory processes fluctuates and rarely ensures Aboriginal rights and title are protected or that community voices are heard.
 - I.E. Only 7% of surveyed Dene participated in the National Energy Board and Environmental Assessment Review Panel meetings for the Norman Wells pipeline. Only 14% believe that such activities were of any benefit to their communities.
- Regulatory and environmental impact assessment processes are site-specific to the pipeline corridor, and do not take into account broader impacts on the land or longer term cumulative impacts.
- Significant developments such as pipelines, in the absence of land claims or treaty agreements cause significant internal and external political disruption for First Nations communities. Development rarely slows or stops while negotiations take place.
 - I.E. At the same time as negotiations with both levels of government were being carried out by the Lubicon Cree, development continued unabated. In March 2005 twelve wells, ten pipelines and six batteries were approved in Lubicon traditional territory.
- Significant increase in the volume of consultation referrals as a result of oil and gas exploration and development. First Nations' tribal offices became overwhelmed by the projects which required consultation, accommodation and monitoring.
 - I.E. Between April 2003 and March 2004, Treaty 8 bands dealt with a total of 4,500 applications from the Oil and Gas Commission.

Employment, Investment Opportunities and Economic Incentives

- Promised benefits to First Nations such as jobs, improved local economies and other financial incentives are rarely actualized in full form.
- First Nations employment in the pipeline construction and operation is limited by lack of appropriate training. Given the short timelines of pipeline construction, there is limited time for interested individuals to gain the training they need to secure employment. While First Nations were employed in jobs with minimal training requirements (slashing etc),

work is traditionally seasonal and unstable. Where training was available, there was a lack of overall long-term planning for training and employment.

- I.E. A mere 8% of surveyed Dene received training to work on the Norman Wells pipeline. 18% reported that they had worked on the pipeline.
- Many First Nations pipeline workers experienced institutionalized racism, discrimination and tokenism both in training and on the job.
- In economically depressed areas, pipeline development was often touted as a cure-all for economic development. Expectations were raised unnecessarily higher than the actual economic spin-offs.
- Creation of “have and have-nots” in First Nations communities. Small numbers of contractors and service providers did experience significant financial benefit, but when the majority of the communities do not share in the benefits, communities become more divided.
- First Nations’ investment into pipeline development has been used as an incentive to ensure long-term benefit for communities. Division among First Nations is aggravated by those who seek to invest and those who oppose the pipeline.
- Resource royalties, when introduced quickly to impoverished communities actually exacerbate social problems, instead of solving them.
 - I.E. First Nations in Hobbema experienced significant increases in suicides, violent deaths, alcoholism and drug abuse, and high school drop-outs following an influx of revenue from the royalties of oil and gas development. At the peak of a suicide epidemic in the mid-1980s, the suicide rate for young men was 83 times the national average. (Individual band members received a cheque for \$30,000 or more upon turning 18. The average family would receive \$3,000/ month.)

Environmental Impacts

- Wildlife and fish have been seriously disrupted by pipeline and oil and gas development, experiencing such effects as altered migration patterns and changes in species behaviour; population decline; loss, damage and fragmentation of habitat; disruption of food webs and contamination of the food chain; contamination and degradation of water supplies.
- Introduced plant species and soil contaminants have been a result of pipeline construction and reseeded activities.
 - I.E. Reseeding activities for the Norman Wells pipeline resulted in 34 non-native plant species being established on the corridor. The reseeded also contaminated soils with head *smut fungus* (*Ustilago Bullata* Beck), previously uncommon in the area.
- Pipeline ruptures and oil spills cause enormous and irreversible damage to entire watersheds and ecosystems impacting fish, wildlife, plants, and drinking water. Between 1980 and 1997, an average of 32 pipeline failures occurred within Alberta each year, and the rate is increasing. During the last five of those 17 years, the average number of pipeline failures per year increased to 734. In 2000 some 1,534 oil spills were reported to the Alaska Department of Environmental Conservation. Environmental toxicologists state that ecosystems can never return to their previous state following an oil spill.
 - I.E. In 2000, the Pembina Pipeline ruptured spilling 6,300 barrels of crude oil into the Pine River near Chetwynd, BC. The oil slick stretched 21 miles on the river

with confirmed kills of both fish and birds. The Town of Chetwynd's water supply had to be shut off, as it had also been affected by the spill.

- I.E. In 1989 the Exxon Valdez spilled nearly 11 million gallons of crude oil into Prince William Sound, with a total spread of 600 miles. Between 100,000 and 645,000 sea birds, 300 bald eagles, 300 harbour seals, 2,800 sea otters, and 25 gray whales are among the dead as a result of the spill. Numerous Native fishing sites were contaminated. Clean up efforts came to a close 3 years later and cost approximately 2 billion dollars.
- Sour gas (H₂S) is extremely hazardous to both humans and wildlife. In a concentration of just 500 parts per million, a leak can cause respiratory paralysis and unconsciousness. Unless quickly revived, those affected die of suffocation within minutes. In the development of natural gas, H₂S leaks have caused human and wildlife fatalities. Since 1999, there has been 73 separate sour-gas leaks reported, and some First Nations communities are on constant alert for potential leaks because of their proximity to sour gas plants.
 - I.E. The Blueberry Reserve near Fort St. John is in the worst possible location for potential impacts from sour gas leaks. The reserve is at the bottom of a steeply sloped valley, and sour gas from adjacent plants endangers the community.

Social & Cultural Impacts

- Increased exposure to outside influences resulted in a loss of social and cultural cohesion, leading to an increase in alcohol and drug abuse. Cultural changes were imposed on First Nations, and communities felt that they did not have any control over changes to their way of life.
- Workers who did secure short-term and/or seasonal employment experienced feelings of expendability within the workforce. Lack of security in the workforce, compounded with a shift from subsistence activities to wage labour, left many families in unstable situations.
- The impacts of development on the health of First Nations' are difficult to determine, because of causation. Increases in illness and disease can also be attributed to other causes, but a lack of health research on specific impacts from pipeline and oil and gas development makes differentiation difficult.
- Seismic lines have cut across traplines, making trapping impossible or dangerous. Traditional gathering sites have been directly and indirectly impacted by seismic lines, right-of-ways, roads, well sites and other developments. The trapline was once the site of cultural knowledge transmission, in many cases this is no longer possible. Elders express feelings of frustration and depression upon visiting their territories.

Access and Accelerated Pace of Development

- Right-of-way access opens up new areas to sport hunters, fishermen and other recreational users. Examples include significant increases in number of moose shot by recreational hunters, which places pressure on subsistence hunting. Increased numbers of hunters also made community members feel unsafe when traveling in the territory for harvesting and ceremonial purposes.
- Pipeline development is consistently the first phase of much larger oil and gas projects. Pipelines are followed by a progression of feeder lines, roads, and seismic lines.

Pipelines and the ensuing development is characterized as creating a web of inter-related projects all with the goal of maximizing resource extraction while producing the lowest unit cost for the producers.

- Some First Nations have no overriding objections to oil and gas development, but do object to the pace at which it is taking place. Small First Nations administrations cannot keep up with the sheer volume of referrals, applications, and permits.

Aboriginal and Treaty Rights

- Aboriginal and treaty rights, including title, are not recognized in regulatory processes and in land use planning in a meaningful way.
- There has been a decrease in land available for land claim settlement due to fragmentation. The traditional territories are covered with a “web” of seismic lines, access roads, and pipelines.
- The practice of Aboriginal and treaty rights including hunting, fishing, and gathering are significantly limited or impossible due to development.

SECTION 4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED GATEWAY PIPELINE

Introduction

This section has been researched and written by Summit Environmental Consultants Ltd, who were commissioned by Carrier Sekani Tribal Council to assess the potential environmental impacts of the Gateway Pipeline. Summit Environmental relied primarily on the general plans for the project outlined in the Preliminary Information Package (PIP) published by Gateway in October 2005 (Gateway 2005)²⁷. CSTC made requests to access Gateway's baseline studies, but were denied. This report presents an overview of the potential environmental impacts of the Gateway Pipeline ("the project") that has been proposed by Enbridge Inc. and its partners (doing business as Gateway Pipeline Inc. or "Gateway").

Current plans call for two pipelines in the same right-of-way (ROW) – one pipeline carrying synthetic crude oil from Edmonton, Alberta to Kitimat, B.C. and a second pipeline carrying condensate in the opposite direction. This review addresses impacts that could occur in Carrier Sekani traditional territory, which extends from just west of Bear Lake, B.C. (pipeline kilometre post [KP] 710) to the watershed divide at the Coast Mountains (KP 1,050), a distance of about 340 km ("the study area" or "the territory"). This accounts for about 30% of the total proposed Gateway Pipeline route.

The goals of the assessment are to:

1. Identify potential impacts to water quality, fish and fish habitat, vegetation, wildlife and wildlife habitat, soils, air quality, noise, and aesthetic and visual resources from the construction, operation, and eventual decommissioning of the project, as well as impacts to these resources from accidents and malfunctions; and
2. Identify the potential for specific environmental impacts in Carrier Sekani Territory and in the territories of the seven CSTC Bands that are participating in the Aboriginal Interest and Use Study.

Aspects of the proposed pipeline project that are relevant to potential environmental effects in Carrier Sekani territory include:

- There would be two pipelines, both carrying their product under pressure. They would be buried between 0.6 m and 1.2 m deep;
- The ROW will initially be 45 m wide – consisting of a 30 m wide permanent²⁸ ROW plus a 15 m temporary work space that would be allowed to re-vegetate after construction;
- The oil pipeline (76.2 cm diameter) would carry an average of 400,000 barrels per day (about 64 million litres/day) and the condensate pipeline (50.8 cm diameter) will carry 150,000 barrels per day (about 24 million litres/day);

²⁷ Gateway Pipeline Inc. 2006. Preliminary Information package – Enbridge Gateway Project. Prepared on behalf of Gateway Pipeline Limited Partnership. Calgary. October 2005.

²⁸ The pipeline would be expected to remain in operation for 200 years or more, but would likely be left buried after operations cease (see Section 5.0). It is therefore considered a permanent project.

- Three permanent pump stations would be built in the territory, out of a total of 11 on the entire route; and
- The pipeline would cross numerous streams and wetlands, with open cut trenching being the crossing method in the majority of cases²⁹. The PIP does not specify the number of stream crossings in Carrier Sekani territory, but the number could be in the range of 600 to 700 streams, based on the territory's proportion of the pipeline's linear distance in B.C.
- The east-to-west direction of the pipeline is unusual in British Columbia, and makes projecting impacts more difficult.

4.1 CONSTRUCTION IMPACTS

Construction impacts are defined as the impacts associated with the construction of the pipeline including site preparation, road building, pipeline installation, and pipeline testing and commissioning. There is some overlap between construction impacts and footprint and operational impacts.

Soils and Terrain

In Carrier Sekani territory the proposed pipeline route runs in a general east to west direction. The eastern part of the territory consists of primarily rolling terrain characteristic of the Nechako Plateau. In the western part of the study area the relief is more pronounced and rocky ridges are common. The topography is oriented in a general northwest to southeast direction reflecting the underlying bedrock geology³⁰. As such, the pipeline route runs generally across a series of valleys and ridges and will likely encounter sections of steep terrain and side hills. Soils are developed on a mixture of glacial till, colluvial, fluvioglacial and lacustrine materials³¹ and include gray luvisols, humo-ferric podzols, brunisols, and organic soils. The soils in the lacustrine basins near Fort St. James and Vanderhoof tend to be highly erodible due to their silty texture.

Areas disturbed by clearing and pipeline construction undergo disruption and alteration of soil properties. There is a risk that there will be significant loss of productive capacity along the ROW due to the reduction in soil organic matter content in the rooting zone. Even if the topsoils are stripped and kept separately there is potential for organic matter losses and structural degradation. This would affect the ability of vegetation to become re-established along the ROW and could result in an undesirable vegetation mix on the ROW (see below). The removal of woody debris from the ROW further reduces the pool of organic matter available to contribute to the soil.

Traffic from heavy construction and other vehicle could result in soil compaction, which would lead to impaired root development and higher than normal runoff rates. This would increase erosion potential, which could further affect soil productivity (from losses of soil organic matter and fine mineral particles) and water quality. Erosion potential is high in some parts of the

²⁹ see Section 2.5 for more information

³⁰ J.J. Clague, "Quaternary geology of the Canadian Cordillera." *Chapter 1 in Quaternary Geology of Canada and Greenland*. R.J. Fulton (ed.) Geological Survey of Canada. Ottawa: 1989.

³¹ K. Valentine and A Dawson. 1978. "The Interior Plateau." Part 3.4 *in The Soil Landscape of British Columbia*. K. Valentine et al. (eds.) B.C. Ministry of Environment. Victoria.

pipeline route through Carrier Sekani territory due to the combination of sloping terrain, erodible soils (e.g. those developed on lacustrine deposits), and the runoff volumes during spring snowmelt. Vehicle ruts left behind post-construction could further exacerbate runoff and erosion potential. The shedding of water from the ROW has implications for soil development and the re-establishment of surface vegetation by contributing to droughtiness.

Pipeline construction, including the development of new or upgraded forest roads between Highway 16 and the ROW, could contribute to terrain instability through a combination of (1) alterations in natural drainage patterns, (2) reduced soil strength where trees and shrubs are cleared; and (3) the loading of the pipeline on the slope. The created instability could lead to landslides, debris flows, or other types of mass movements. Landslides would tend to occur some years after construction is complete and the pipeline is operational, and so are dealt with under operational impacts.

During construction, small patches of soils may become contaminated by vehicle fluids and construction-related waste (e.g. drilling fluids used for directional drilling). These hazardous materials may reduce plant growth on the ROW and in the temporary workspace, and could be carried with runoff into local water bodies. If not detected and remediated, the local effects of any spills on soils could persist for some time.

Vegetation

This section addresses impacts on vegetation specifically from the pipeline construction process. Impacts to vegetation and ecosystems from the long-term presence of the ROW are addressed below in operational impacts. During construction the trees and shrubs in the 30 m wide ROW and the 15 m wide temporary work area will be removed (total 45 m wide). Ground cover (e.g. grasses, forbs) will also be removed in the immediate vicinity of the pipeline trench, and disturbed across the width of the ROW and temporary work area. In addition to the temporary loss of ecological function, the removal of vegetation could impact gathering sites for the traditional food, medicine, and technology plants of Carrier Sekani people.

Carrier Sekani territory has been heavily impacted by the Mountain pine beetle (MPB) (*Dendroctonus ponderosae* Hopkins) over the past decade (see Figure 4.1). The large volumes of dead and dying trees in the territory significantly increase wildfire hazards and there is potential for construction activity along the ROW and access roads to result in wildfire initiation, especially during the summer.

Pipeline construction has the potential to result in the introduction of noxious weeds (e.g. knapweed) and other invasive plants into previously unaffected areas. Often these species thrive in such areas to the exclusion of native grasses or preferred forbs, and can limit the potential for the ROW to resemble a natural opening. Weed seeds are carried on vehicles that have passed through impacted areas and the weeds are easily established on disturbed soils before native species. Knapweed and other noxious weeds are not palatable to many wildlife species or range cattle that might be attracted to the ROW.

Wildlife and Wildlife Habitat

Like the previous vegetation section, this section outlines the potential impacts only from the construction of the Gateway pipeline. The longer-term effects associated with the ROW are discussed under operational impacts. Potential construction-specific impacts to wildlife include:

- Direct disturbance of wildlife habitat during layout (e.g. helicopter traffic), clearing, grubbing, slash burning, blasting, and pipeline installation;
- Avoidance by wildlife of breeding or foraging habitat and of migration routes and travel corridors due to noise and the presence of construction equipment and personnel;
- Hunting and possibly poaching by short-term construction personnel;
- Increased human-wildlife conflicts (e.g. due to uncontrolled garbage attracting wildlife);
- Direct mortality because of vehicle collisions or the need to control problem wildlife; and
- Effects from spills of drilling mud or vehicle fluids introducing toxins to wildlife habitat.

Air and Noise Pollution

During construction, high levels of aerosol particulates (dust) are often generated, which is of particular concern where the pipeline will pass near several inhabited reserves, including Six Mile Meadow IR6, Burns Lake IR18, Poison Creek IR17, and Poison Creek IR17A. Emissions from slash burning and construction equipment may cause further health concerns, with the additional potential to introduce contaminants to the regional atmosphere. For example, the complex mixture of compounds found in wood smoke has been linked to increased occurrence of respiratory infection and ear infection, and increased symptoms of respiratory conditions such as asthma³². Fine particulates found in dust and smoke can cause lung-irritation in healthy people. They can also cause respiratory illnesses and worsen asthma conditions in at-risk groups such as children, the elderly and those with pre-existing illness.

Some of the other emissions of concern are related to construction equipment emissions. For example, diesel exhaust contains metals, benzene and many other contaminants. A portion of these emissions could move into residential areas and be deposited in the local area, adding to the cumulative effects of existing and historical industrial and transportation emissions.

During construction, noise from surface equipment, blasting, and helicopters will be generated that may disturb nearby residents, recreational users, as well as fish and wildlife. While the most unpleasant noise may be temporary, loud construction noise is something rural residents are not accustomed to. Relocation of local wildlife due to noise would likely be temporary but could cause longer-term effects if the disturbance occurs during critical reproductive periods.

Water Quality

The PIP states that a total of 870 stream crossings have been identified along the Gateway pipeline route within B.C. and indicates that this number could rise by 30% (i.e. to 1,130 streams) as unmapped small streams are identified by field surveys³³. The number of stream crossings in Carrier Sekani territory is not specified, but since the territory accounts for about 54

³² T.V. Larson and J.Q. Koenig. "Wood smoke: emissions and non-cancer respiratory effects." *Annual Review of Public Health*.15: 133-156, 1994.

³³ Gateway, 2005.

per cent of the pipeline's linear distance in B.C. the number of crossings could be in the range of 600 to 700 streams. In addition, the pipeline route could cross numerous wetlands and run near the margins of ponds and lakes. Major rivers and streams crossed by the proposed route (moving from east to west) include:

Stream Crossed	Primary Receiving Stream/Lake	Secondary Receiving Stream/Lake	Tertiary Receiving Stream/Lake
Muskeg River	Salmon River	Fraser River	
Salmon River	Fraser River		
Necoslie River	Stuart Lake	Stuart River	Nechako River
Stuart River	Nechako River	Fraser River	
Sutherland River	Babine Lake/River	Skeena River	
Sheraton Creek	Endako River	Stellako River	Fraser Lake - Nautley - Nechako
Tintagel Creek	Endako River	Stellako River	Fraser Lake - Nautley - Nechako
Endako River	Stellako River	Fraser Lake	Nautley - Nechako
Maxan Creek	Bulkley River	Skeena River	
Foxy Creek	Maxan Lake/River	Bulkley River	Skeena River
Klo Creek	Buck Creek	Bulkley River	Skeena River
Buck Creek	Bulkley River	Skeena River	
Morice River	Bulkley River	Skeena River	
Tagit Creek	Morice River	Bulkley River	Skeena River
Thautil Creek	Morice River	Bulkley River	Skeena River
Gosnell Creek	Morice River	Bulkley River	Skeena River
Burnie Creek	Clore Rover	Zymoetz (Copper) River	Skeena River
Clore River.	Zymoetz (Copper) R.	Skeena River	

Installation of the pipelines has the potential to immediately degrade surface water quality through erosion and sedimentation. Accelerated soil erosion may contaminate rivers, lakes and wetlands with particulates and associated compounds (i.e. nutrients, herbicides) that are bound to fine particles. The PIP indicates that ditching and backfilling will be used (p. B-6) and suggests that horizontal or aerial crossings will be considered (pp. 3-5 and 3-11), but does not provide details on the threshold where trenchless or aerial techniques would be selected over methods that directly impact streams and wetlands (i.e. open trench or stream isolation methods). Nevertheless, it is expected that Gateway will propose to cross a significant number of watercourses by trenching across the surface. This has the potential to cause significant releases of sediment.

Turbidity increases caused by sediment are a potential problem for aquatic life. Fish start to show signs of stress within a few hours at fairly low (i.e. 10 NTU) levels of turbidity. Juvenile Chinook salmon, which is a key local species, have been shown to be at higher risk of predation

due to changes in behaviour induced by increased turbidity³⁴. A review of studies that examined the effects of open-cut pipeline water crossings over 25 years identified a number of effects including reductions in abundance and diversity of benthic invertebrates and reductions in the abundance of fish populations³⁵.

British Columbia's water quality guidelines for turbidity indicate levels that are acceptable for human, wildlife and livestock consumption and for aquatic life. These values range from 5 NTU for drinking water to a maximum of 50 NTU for recreation and aesthetics. Aquatic life should not be exposed to more than 8 NTU above background levels in any 24-hour period³⁶. Elevated total suspended solids (TSS) concentrations, as a component of turbidity, can affect water quality, as well as alter stream morphology and streambed composition³⁷. Should TSS levels remain elevated for days or weeks during certain periods of the year, primary production (plant production) of a stream may be inhibited downstream from the crossing³⁸. Sediment introduced to streams from the ROW or from open-cut crossings can deposit in the channel, thereby impacting fish habitat and contributing to channel instability. Many of the watersheds along the pipeline route have been already affected by accelerated erosion from resource roads, and the effects from pipeline construction would add to the existing sedimentation concerns. Sediment introduced to streams from construction areas is not only a concern for physical water quality; nutrients and any construction-related contaminants (e.g. drilling fluid, petroleum products) bind to sediment and organic matter, and may become dissociated from these particulates when in water and enter the aquatic food web where they can be accumulated by aquatic organisms including higher trophic levels such as salmon.

Surface water and groundwater may be directly contaminated by construction, industrial and liquid waste; drilling mud (from directional drilling); and by any temporary sewerage facilities. This may become a health issue for local residents if drinking water is contaminated. Sewage waste could also increase nutrient concentrations in surface water causing algal blooms and associated decreases in water quality (oxygen depletion, etc.); although these effects would likely be short-lived as construction crews would only remain in place for a short time.

Fish and Fish Habitat

Impacts from construction on fish are strongly related to water quality, as noted in the previous section, and to direct effects on riparian, stream, and lake habitats. In general, fish that are adapted to cold water (e.g. salmonids) are more sensitive to increases in temperature and suspended solids than those resident in warm water habitats. Changes in riparian habitat at stream crossing sites and at lake and wetland margins could negatively affect fish habitat and

³⁴ R.S. Gregory. Effect of turbidity on the predator avoidance behaviour of juvenile Chinook salmon (*Oncorhynchus tshawytscha*). Can. J. Fish. Aquat. Sci. 50(2): 241-246, 1993.

³⁵ S.M. Reid and P.G. Anderson. Effects of sediment released during open-cut pipeline water crossings. Can. Water. Res. J. 24(3): 235-249, 1999.

³⁶ Ministry of Environment. British Columbia Approved Water Quality Guidelines (Criteria) 1998 Edition. Updated 2001. Water, Air and Climate Change Branch. On-line at:
http://www.env.gov.bc.ca/wat/wq/wq_guidelines.html#approved

³⁷ Anderson, P.G., B.R. Taylor and G.C. Balch. Quantifying the effects of sediment release on fish and their habitats. Prepared for the Eastern BC Habitat Unit and Alberta Area Habitat Management Div. Dept. Fisheries and Oceans, Can. Manus. Rep. Fish Aquat. Sci. No. 2346, 1996.

³⁸ Canadian Pipeline Water Crossing Committee (CPWCC).

increase water temperatures. Table 4.1 summarizes the key rivers, and known fisheries issues of concern to the Carrier Sekani people.

All fish species are important to Carrier Sekani people, and the species of particular interest include salmon (sockeye, Chinook, pink, and coho), steelhead, rainbow trout, bull trout (formerly known as Dolly Varden), white sturgeon, arctic grayling, burbot, longnose sucker, and mountain whitefish. Carrier Sekani people harvest these species for food, social, and ceremonial use throughout the year, with the exception of self-imposed restriction for conservation reasons of certain salmon stocks and white sturgeon³⁹. The Nechako white sturgeon (including sturgeon in the Stuart River system) is genetically unique from Fraser River sturgeon and is listed as endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The CSTC is currently developing a conservation strategy for the Nechako white sturgeon and is very concerned about the potential effects of the proposed pipeline on this species.

³⁹ Brian Toth. Letter to Tara Marsden of CSTC re. Fisheries Interest/Use and the Proposed Enbridge Pipeline Corridor. CSTC Biologist/Technical Advisor. March 10, 2006.

Table 4.1. Specific fisheries information, key rivers, and known fisheries issues of concern to the Carrier Sekani Tribal Council.

Stream	Fisheries Interests/Primary Stocks	Key Issues
Endako River*	Chinook stock and resident stocks including kokanee. Used by Stellat'en, Burns Lake Band and Wet'suwet'en.	Chinook are "functionally extinct". On-going flow control study to enhance spawning and incubation success of Chinook and kokanee
Fraser River	All salmon species, white sturgeon, burbot (ling cod), bull trout (Dolly Varden)	Indirect effects but general concern over cumulative effects in tributaries. Spawning of white sturgeon.
Middle River	Salmon	Is a B.C. Heritage River . Important component the salmon habitat and production of the Stuart/Takla watershed
Morice River*	Very high fisheries values with numerous species present. Sockeye and spring salmon very important.	Support fish stocks that contribute to the needs of all downstream Skeena First Nations as well as the Wet'suwet'en First Nations.
Muskeg River*	Chinook salmon, kokanee, rainbow trout	Insufficient existing information to enable an impact assessment.
Nautley River	Chinook and sockeye salmon; white sturgeon; kokanee; bull trout; rainbow trout.	Important traditional salmon fishing spot for the local Nadleh Whut'en people; drains Fraser Lake into Nechako River - <1 km in length.
Nechako River	White sturgeon; Chinook and sockeye salmon; many other species.	Indirect effects but general concern over cumulative effects in tributaries. Largest Fraser River tributary; ~23% of the <i>Ltha Koh</i> sockeye production originates in the <i>Nee Incha Koh</i> watershed. Concerns about white sturgeon.
Ormond Creek	Chinook Salmon, Dolly Varden, kokanee, rainbow trout, sockeye salmon	Sockeye considered extinct since 1972; 450,000 eggs transplanted from Stellaquo River over 2 yrs to re-establish population.

Source: Adapted from Toth (2006).

Note: Not all of these streams would be crossed by the current proposed alignment but are in the general study area.

Those that would be crossed by current proposed route identified by *.

Table 4.1. Specific fisheries information, key rivers, and known fisheries issues of concern to the CSTC (cont.)

Stream	Fisheries Interests/Primary Stocks	Key Issues
Pitka Creek*	Sockeye salmon.	In Nak'azdli territory; On-going habitat assessment project.
Salmon River*	Chinook stock and resident species.	Stock is significantly reduced from historical levels.
Shovel Creek*	Endako tributary – provides important portion of available Chinook spawning habitat for Endako Chinook. Spawning for rainbow trout and other species.	In Nak'azdli; water temp concerns; proposed crossing is well upstream of Chinook spawning area.
Sowchea Creek*	Rainbow trout, sockeye spawning habitat.	In Nak'azdli; habitat assessment project. Area known for vermiculite deposits.
Stellaquo (Stellako)	Late run sockeye, Chinook, rainbow trout, bull trout, burbot, mountain whitefish	Source of eggs for transplant to Ormond Creek.
Stuart River* & tributaries	Early run sockeye, plus late run; Bull trout; white sturgeon.	B.C. Heritage River. One of the highest quality wild sockeye salmon runs in the world. In some years, up to one million salmon migrate the river system to the spawning grounds in tributary streams and rivers north of Stuart Lake.
Sutherland River*	Poorly inventoried, but known to be the primary spawning stream for Babine Lake rainbow trout.	Used by Tl'azt'en, Nadleh. Relatively pristine at present. Riparian habitat valuable for fish and wildlife.

Source: Adapted from Toth (2006).

Note: Not all of these streams would be crossed by the current proposed alignment but are in the general study area.

Those that would be crossed by current proposed route identified by *.

During construction, fish may be subject to direct effects caused by increases in suspended particulates (TSS) and/or turbidity. Elevated TSS in the water column can impact individual fish through altered behaviour and/or physiology. The degree of the impact is species and life-history stage specific (i.e., egg, fry, juvenile, adult) and is dependent on magnitude and duration of exposure to the sediment plume⁴⁰. The deposition of coarser sediment into fish-bearing streams could have a longer-term affect due to the disturbance of spawning or rearing habitat. Many streams throughout Carrier Sekani territory have been affected by previous land use activities, notably from resource roads, and may be sensitive to further sediment inputs and changes in peak flows.

Construction activities at pipeline river crossings may impinge upon localized areas during sensitive life stages for fish. Stuart River Chinook, while not in decline, may be threatened by a proposed pipeline crossing at their primary spawning habitat. Also, the possible location for a pipeline crossing between Decker Lake and Burns Lake on the Endako River contains spawning habitat for kokanee, rainbow trout, and a number of non-sport species⁴¹. Wetland and riparian areas near the proposed crossing site are also important for aquatic birds and amphibians.

Water temperature increases may result from clearing vegetation at pipeline crossings. Within Carrier Sekani territory, temperature management has been an ongoing issue, especially in the Nechako River and its tributaries. A large portion of the Nechako River flow is diverted for power generation by Alcan, making the section of river that flows through Carrier Sekani territory more susceptible to increases in water temperature. Temperatures currently occasionally exceed the B.C. guidelines for salmonids during adult Chinook and sockeye migration. Also, Stuart River sockeye are already subject to elevated temperatures, a factor that is thought to be a contributing factor in their historical decline⁴². Any further temperature increases could cause undue additional stress to these stocks, and should be considered wherever pipeline crossings occur at salmonid streams or other water bodies. Even at a site-specific level, increased temperature from reduced shade cover in riparian areas may reduce the usefulness of the channel as incubation, rearing, and foraging habitat for some aquatic species.

Fish may also be subject to indirect effects from construction activities that directly affect their habitat and food sources. For example, if aquatic plants are physically removed from an area important as habitat for aquatic invertebrates or as cover for young fish, effects may be felt at both the individual and population levels of the fish species. Downstream from pipeline crossing construction, plants and aquatic invertebrates are susceptible to deposition of high levels of suspended solids. Plants that are covered in sediments are unable to photosynthesize and are likely to die back. The absence of rooted plants effectively eliminates important aquatic invertebrate habitat, contributing to effects throughout the food web.

Other impacts may include reduced overall aquatic diversity as adaptive species out compete those that cannot adapt to habitat change, potential for re-suspension of deposited construction particulates during high flow periods, and the transfer of aquatic organisms (parasites,

⁴⁰ Canadian Pipeline Water Crossing Committee (CPWCC)

⁴¹ Toth 2006

⁴² Toth 2006

invertebrates, plants) from one water body to others on construction equipment. The potential for effects on fish to extend beyond the construction period are addressed below.

4.2 FOOTPRINT AND OPERATIONAL IMPACTS

Footprint and operational impacts are impacts associated with the presence and routine operation of the pipeline, the right-of-way, and related infrastructure such as pump stations, power lines, and access roads.

Soils and Terrain

There is potential for on-going erosion and sedimentation from the ROW. This has implications for site productivity on the ROW and for off-site water quality and fish habitat. Erosion from forest roads is generally a major human-caused sediment source in a watershed, and any new roads established for the pipeline would increase water quality hazards. Sediment delivery from new roads usually declines over time as the road prism stabilizes, but researchers have documented erosion rates in the range of 11-1,232 tonnes/ha/year from roads⁴³.

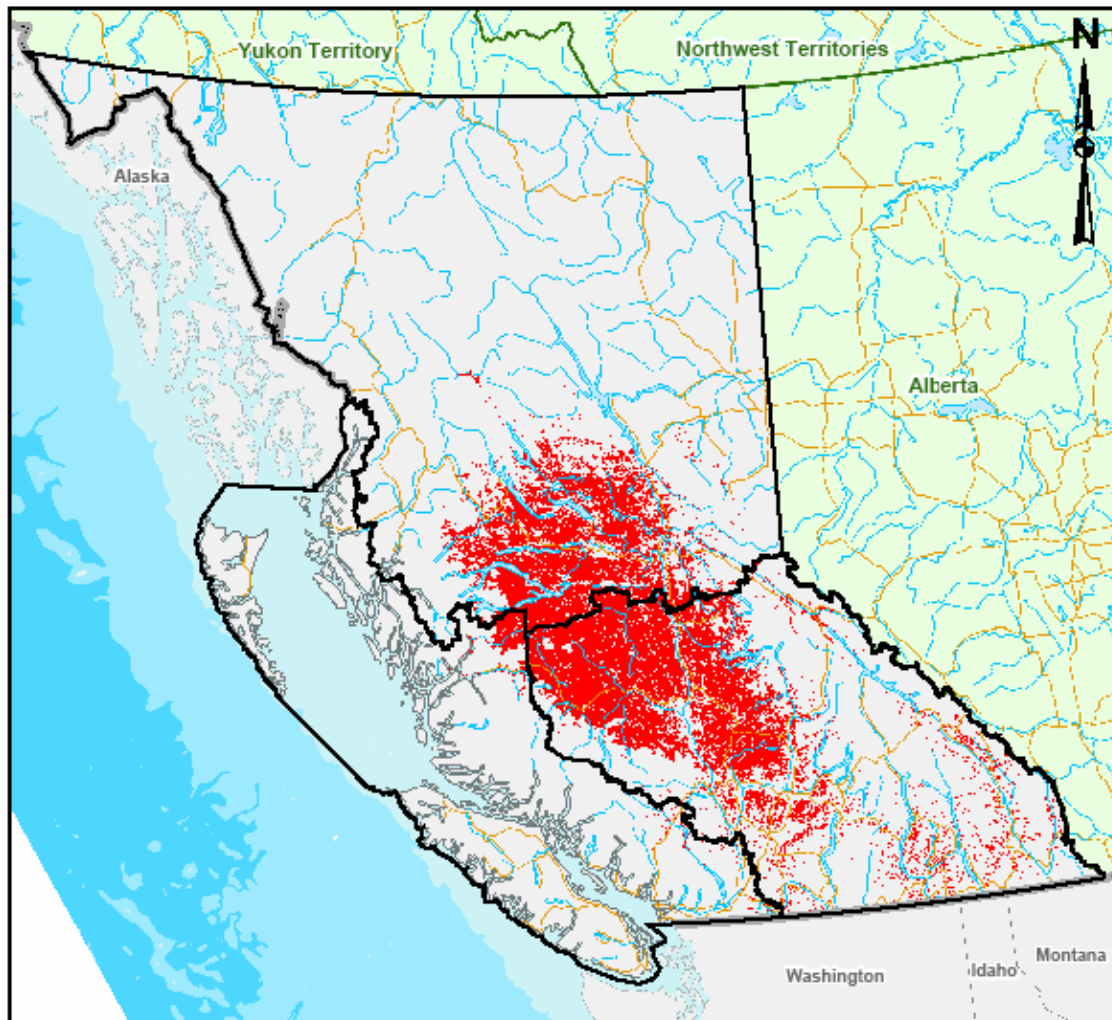
Reduced terrain stability along the ROW and access roads may emerge some time after operations begin due to changes in natural drainage patterns, loss of root strength, and over-steepening of slopes, especially where the ROW follows along side hills. If they occur, landslides and other types of mass movements could result in effects on aquatic habitat and water quality, loss of forest productivity, and safety hazards. In addition, a landslide originating on or adjacent to the ROW could jeopardize pipeline integrity and lead to a spill of condensate or crude oil (see Section 4.3).

Vegetation and Ecosystems

As described earlier, Carrier Sekani territory has been significantly affected by the current Mountain pine beetle (MPB) outbreak that is affecting much of the B.C. Interior. Figure 1 shows the extent of the outbreak as of 2005. The MPB infestations have caused significant mortality of lodgepole pine throughout central and southern B.C., and current estimates indicate that over 480 million m³ of mature pine has been infested, totalling over 48% of the existing mature pine stock⁴⁴.

⁴³ W.J. Elliott. "Roads and other corridors." Chapter 9 In: *Drinking Water from Forests and Grasslands: A synthesis of the scientific literature*. Dissmeyer, G.E. (ed.) United States Department of Agriculture, Forest Service. Southern Research Station. General Technical Report SRS-39. pp. 85-100, 2000.

⁴⁴ Chatwin, Steve, Andrew Fall and Grant Loeb. *Evaluating Mountain Pine Beetle Management in British Columbia*. Special Report to the Forest Practices Board of BC. No. SR20, 2004.



Note: The proposed Gateway pipeline route would run just north of the east-west black line that demarcates the Northern Interior Forest Region from the Southern Interior Region (Source: MacLauchlan 2006).

Figure 4. 1. Mountain pine beetle outbreak in B.C. as of 2005.

The epidemic has not yet run its course and the Ministry of Forestry and Range anticipates that the current MPB epidemic may consume up to 1 billion m³ before this infestation exhausts its food supply and collapses.⁴⁵ Surveys completed in the Nadina, Fort St. James, and Vanderhoof Forest Districts⁴⁶ in 2005 indicate that a total of 2.75 million hectares of forest have been affected by MPB.⁴⁷ As part of the strategy to minimize the economic effects of the MPB epidemic the provincial government has authorized large-scale salvage harvest of both affected pine and pine that is likely to be affected. Therefore the combination of MPB mortality and salvage logging, along with the effects of conventional forest harvest operations, has resulted in the creation of a landscape with much greater coverage of openings and early-seral stage forest than is natural. Although the study area would naturally experience disturbance by large wildfires and pests, which is why large areas are dominated by lodgepole pine (i.e. >40% coverage), the current scale of disturbance is considered beyond natural levels.

By creating permanent forest openings the Gateway pipeline will add to the cumulative effect of the current MPB epidemic and historical conventional forest harvest. The initial clearing of the 30 m wide ROW and the 15 m wide temporary workspace (total 45 m) will create an opening of 4.5 ha for every one kilometre of pipeline (or 17.9 acres per mile). The temporary workspace will be allowed to re-vegetate, but 3.0 ha per kilometre of pipeline will remain as a permanent early-seral stage forest without trees greater than about one metre in height. There are three pumping stations proposed for CSTC territory (kilometer posts 800.2, 896.0, and 971.0), which will add slightly to the total area that is permanently altered. Although some of the ROW may be expected to traverse second-growth forest and/or MPB-affected forest, some loss of old-growth forest (i.e. older than 120-140 years) may be expected. Old growth typically accounts for less than 15-20% of the territory and plays an important role in wildlife habitat (see below).

The creation of permanent openings in an area that already has an unnaturally high percentage of disturbed, open areas would be expected to further reduce local vegetative biodiversity, even if native species are used in ROW reclamation. Creation of mechanisms (i.e. wind, ungulate, and maintenance vehicle movement in the ROW) for the long-distance dispersal of weeds in the territory also has implication for native plant species. Changes in vegetation composition along the ROW could also impact gathering sites for the traditional food, medicine, and technology plants of Carrier Sekani people.

Wildlife and Wildlife Habitat

In general, utility ROWs can result in direct loss of wildlife habitat (i.e. conversion of forest to shrubs and grasses), habitat fragmentation, disruption of predator-prey relationships (including humans as predators), and possibly direct mortality from accidents. In Carrier Sekani territory a critical potential impact of the Gateway pipeline on wildlife is the creation of new forest openings where there is already an oversupply due to previous and on-going forest disturbance. If approved, the ROW will initially be 45 m wide, eventually reducing to 30 m in width as the

⁴⁵ Eng. M., A. Fall, J. Hughes, T. Shore, B. Riel, P. Hall and A. Walton. *Provincial-Level Projection of the Current Mountain Pine Beetle Outbreak: An Overview of the Model (BCMPB v2) and Results of Year 2 of the Project*, 2005.

⁴⁶ These are the Forest Districts where the Gateway pipeline would cross Carrier Sekani territory.

⁴⁷ Ministry of Forests and Range (MOFR). *Mountain Pine Beetle District Breakdown*. March 2006. On-line at http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/BKG2005MPBSurvey.pdf

temporary work area is allowed to grow back. At this width the loss of hiding and thermal cover in the already fragmented landscape could have significant effects on some wildlife species including mountain caribou, mountain goat, grizzly bear, and deer. Where the ROW has replaced older forests there could be a serious local effect on species that depend on old forests, including the commercially important furbearers lynx, marten, and fisher.

In addition to forests, the pipeline ROW will likely traverse a variety of other ecosystems, including wetlands and riparian areas, although it is understood that the pipeline planners will preferentially select well-drained areas. Nevertheless, impacts on wetter ecosystem and associated wildlife appear likely given the stated number of stream crossings in the PIP. Wetlands are important habitat for birds (including the ducks and geese that are hunted), amphibians, small mammals (including beaver and muskrat), some large mammals (e.g. moose) and invertebrates.

The creation of the ROW and new access roads (and the re-activation of previously deactivated forest roads) will potentially increase hunter access into parts of the territory where access is currently a challenge. In straight sections of the ROW the lines of sight for hunters may also increase hunter success rates, especially where ungulates are attracted to food sources associated with new shrub and tree growth in areas that were cleared for construction. In addition, there is evidence that natural predators (e.g. wolves) hunt on utility ROWs because of their attraction to ungulates and small mammals and the improved sight lines.

Finally, the wildlife sections of the PIP and the critical work plan⁴⁸ focus on species of regional importance, those that are hunted or trapped, and “species at risk” that may potentially be affected by the proposed pipeline corridor. However, the Carrier Sekani people value all wildlife species in the traditional territory because of their deep connection of the land, to their history and traditions as hunters and gatherers, and to the stories and lessons passed down from older generations. Although the “at risk” and commercially important species are important, there is concern that the full range of wildlife species and their habitats at-risk cannot be adequately addressed in the Gateway environmental assessment.

Hydrological Regime and Water Quality

The development of the Gateway pipeline ROW and associated access roads has the potential to alter the local hydrological regime, which has implications for water quality, fish habitat, and ecosystem composition. Again, it is the cumulative effect of the pipeline on top of the recent MPB and forestry effects that causes significant concern. Groundwater levels have already reportedly risen in MPB-affected areas in the Vanderhoof Forest District, requiring the use of low ground pressure harvesting equipment, additional site preparation (e.g., mounding), and a shift in logging operations from summer to winter⁴⁹.

Numerous studies have shown that removal of forest vegetation results in increased water yield from watersheds, caused by reductions in water losses from interception, evaporation, and

⁴⁸ Jacques Whitford Ltd.. *Enbridge Gateway Initiative Critical Work Plan*. Prepared for Enbridge Pipeline Inc. Edmonton 2005.

⁴⁹ Ministry of Forests (MOF). *Recommended operational procedures to address hydrological concerns*, 2005.

transpiration when trees are removed⁵⁰. However, the harvesting threshold at which changes in hydrologic regime are detectable is usually reported as about 20% equivalent clearcut area^{51 52 53}. Forest harvest can also influence the timing of flows and the magnitude of peak flows, the latter effect through a combination of clearing and road (and ROW) drainage effects. In general, it is only changes in peak flows (not ordinary flows) which cause bank erosion and transport large debris and coarse sediment, and thus have undesirable implications for water quality, channel stability, and aquatic habitat. The loss of forest cover totaling 4.5 ha per kilometre of pipeline would add to the existing hydrological effects of clearing and thereby contribute to increases in these potentially detrimental peak flows.

The residual effects of trenching, pipeline installation, and drainage works on the ROW and access roads could alter groundwater recharge and discharge regimes. This could add to the changes in peak flow associated with forest clearing and may result in local changes to springs and small streams. A number of springs in Carrier Sekani territory are known as “healing waters” and people travel specifically to these sites to obtain drinking water. Depending on the route location, the pipeline could affect these water sources.

In addition to the changes in water quality brought about by changes in the hydrological regime, major water quality concerns associated with the ROW and access roads include erosion and sedimentation (including effects of landslides), reduced shade in riparian areas and increased water temperatures, and effects of minor spills from maintenance vehicles and recreational users. The PIP does not specify whether herbicides would be used for vegetation control on ROWs. If so, they could have implications for water quality.

Fish and Fisheries Habitat

As noted earlier, the number of stream crossings in Carrier Sekani territory could be in the range of 600 to 700 streams. Impacts to aquatic ecosystems from the operation of pipelines and maintenance of the corridor that will be ongoing are in some cases similar to those from construction, especially if the ROW and/or access roads become long-term sediment sources. Sedimentation can affect fish directly but effects on habitat availability and quality are likely more serious.

Increased sport fishing opportunities that occur as a result of easier access will increase pressure on some already-stressed fish stocks. New roadways and a cleared corridor will provide vehicle access (including ATVs) to many water bodies that were formerly inaccessible or difficult to access. Effects would be most widely felt among the common sport species.

Adverse effects on fish and fish habitat may occur where access road culverts are not properly installed. This has the potential to block fish passage to upstream habitat. Improperly sized or

⁵⁰ Bosch, J.M. and Hewlett, J.D. *A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration*. Journal of Hydrology 55: 3-23, 1982.

⁵¹ ECA

⁵² Reksten, D.E. “Hydrologic impacts of land use change”. In: C.H. Coulson (ed.) *Manual of Operational Hydrology in British Columbia*. B.C. Ministry of Environment, Water Management Division. pp. 207-234, 1991.

⁵³ Stednick, J.D. *Monitoring the effects of timber harvest on annual water yield*. Journal of Hydrology 176: 79-95, 1996.

installed culverts can contribute to road and slope failures and associated stream channel instability.

Other fisheries issues that were outlined in the section on pipeline construction that may cause continued problems during operation and maintenance include:

- Loss of riparian habitat at pipeline crossing sites. Riparian vegetation provides shade, provides food sources for fish, contributes large woody debris to the channel, filters sediment, and contributes to stream bank strength and stability;
- Minor spills of fuels and other contaminants (large-scale spills are addressed in Section 4.3); and
- Cumulative impacts on water temperature. This is a concern because the Nechako River system is currently sensitive because of water diversions and is therefore at risk as local climates change and become warmer. This could put cold water-dependent fish species at risk.

Air Quality and Noise

It is understood that the three pumping stations in Carrier Sekani territory would be powered by electricity, therefore emissions to the atmosphere from pumping stations would likely be limited to those from maintenance vehicles and occasionally from back-up diesel-powered generators.

Dust from maintenance vehicles on the ROW is a concern near inhabited reserves (i.e. Six Mile Meadow IR6, Burns Lake IR18, Poison Creek IR17, and Poison Creek IR17A).

Although greenhouse gas emissions would be more concentrated during construction (e.g. from slash burning), net increases in greenhouse gas emissions are possible because of the replacement of growing forests with what is essentially permanent pasture. If even half of the 340 km of ROW through Carrier Sekani territory is forested, more than 500 hectares will be replaced with a grass and shrub system that would sequester less atmospheric carbon dioxide than before.

Two of the three pumping stations in the territory would be located close to the reserves noted above. Noise generated at the stations could pose a nuisance to residents. Noise from helicopters conducting maintenance inspections of the ROW may also affect residents.

Visual Impacts

The pipeline ROW will be a permanent linear feature averaging 30 m in width that will be visible from many vantage points throughout the territory. Although cut blocks and other forest openings currently compromise the visual quality of the territory, the relative “straight line” configuration of the ROW would increase the impression of a disturbed landscape.

4.3 ACCIDENTS AND MALFUNCTIONS

Potential for Occurrence

The introduction of the Gateway Pipeline into the traditional lands of the aboriginal people represented by the Carrier Sekani Tribal Council would introduce a level of risk from accidents and malfunctions that have not, to date, been fully identified or quantified. Specific concerns

include the risk (defined as the combination of probability of an event occurring and the consequences of that event) of a pipeline failure and the effect such a failure will have on soil and water quality, biota, and potentially human health in the study area.

It needs to be recognized that pipeline failures do occur. Table 4.2 has been adapted from the National Energy Board website and shows that Enbridge has experienced eight pipeline failures on its regulated lines since 1992, averaging 1,809,000 litres per rupture (for the seven ruptures where data on spill volumes are available). Data prior to 1992 was not available through the NEB, but undoubtedly other failures occurred prior to 1992.

In addition, oil pipeline breakage and resulting environmental damage is not without precedent in northern B.C. In August 2000, an oil pipeline break resulted in a spill of a million litres into the Pine River, which is the water supply for the community of Chetwynd (Daily News, Aug 2, 2000). Fish, birds, insects, plant life and mammals were reportedly killed as a result of this spill. Farmers with property on the banks of the river reportedly witnessed pools of oil coming up through pastures. Most recreational services were closed and water was trucked from the Sukunka River and delivered to the town's reservoirs. Many rural area people were told not to use their wells and temporary cisterns were installed.

The Ministry of Water, Land and Air Protection's Pollution Prevention Program staff indicated that "most aspects of this spill have been beyond the scope of spill emergency management previously experienced"⁵⁴. While 80% of the oil was removed from the environment as liquids or in contaminated soil, approximately 80,000 litres spread throughout the Pine River ecosystem. Residual hydrocarbon remained in patches of river sediments in the upper area of the spill. These levels continue to be a management concern for drinking water. In 2001, the Ministry reported that "the company has conducted all the clean up work that was possible and natural breakdown of the material is now required for the final removal of oil from the system."⁵⁵ Most of the follow-up sampling studies to determine impact assessment were carried out by the company's consultants, despite efforts made by First Nations and other groups to be involved.

The impacts on the river sediment included increase hydrocarbon concentrations over the first 25 km downstream. Physical cleanup of the river bottom was not possible due to the impact it would create, leaving the residual oil to be broken down naturally. Impacts on birds and wildlife were not well documented, but oil did kill some birds and beaver at the break site and up to 20km downstream. Fish populations in the first 20km were heavily impacted. Once again, documenting actual numbers was difficult for the company and the Ministry, however the Ministry estimated the number of Mountain Whitefish and Sculpins killed to in the tens of thousands. The Pine River remained closed for fishing.

Despite concerns expressed by local residents over the residual oil present in the river and its effects on drinking water, the Medical Health Officer's reopened the river for drinking water, as "the levels of hydrocarbons in the surface water downstream where extraction may occur, have

⁵⁴ Rich Girard, RPBio., *Pine River Oil Spill: Dealing with a Water Emergency*. Ministry of Water, Land and Air Protection; Pollution Prevention Program, 2001.

⁵⁵ Girard, 2001.

continued to meet Canadian drinking water standards”⁵⁶. The Ministry staff noted that “many feel strongly that if oil can be found anywhere in the river system then the river water cannot be consumable. It is natural for the public to want a zero risk situation but professions dealing with pollution and health issues do not conduct assessments and make decisions based on zero risk”⁵⁷. In assessing the ability of the Ministry and the company to handle a spill of this magnitude, and the overall experience of the clean-up and impact assessment, Girard concluded that “prevention, where possible, certainly appears as an attractive option to experiencing a spill of this magnitude.”

The pipeline owner has completed studies on the effects on fish and wildlife⁵⁸, but the long-term ecological effects on the river’s flora and fauna and the food web are unknown⁵⁹.

Although modern pipelines include automatic shut-off capabilities to minimize spills, these systems may not function properly. A leak from an oil pipeline in Alaska in February 2006 was not detected for five days and resulted in a spill of about one million litres of oil that covered about 0.8 ha of soil⁶⁰.

Data from the U.S. Department of Transportation’s Research and Special Programs Administration, Office of Pipeline Safety (RDPA/OPS) list the relative frequency of liquid pipeline failures during the two-year period from January 1, 2002 to December 31, 2003 as follows:

⁵⁶ Girard, 2001.

⁵⁷ Girard, 2001.

⁵⁸ D. Sutherland. Personal communication (telephone conversation). Environmental Quality Section Head. B.C. Ministry of Environment. Prince George, 2006.

⁵⁹ P. Laidman. Pipeline spills 1 million litres of light crude oil into the Pine River, British Columbia, Canada. Latest Oil Spill News. 2000. <http://www.oil-spill-web.com/news>

⁶⁰ J. Roach. Alaska Oil Spill Fuels Concerns Over Arctic Wildlife, Future Drilling. National Geographic News. March 20, 2006. On-line at: http://news.nationalgeographic.com/news/2006/03/0320_060320_alaska_oil.html

Table 4. 2. Enbridge pipeline rupture history since 1992.

Incident no.	Date	Nearest Centre	Year installed	Product	Immediate Cause/Sub-Cause	Volume released (Litres)
2001-064	29-Sep-01	Binbrook, ON	1972	Crude	Metal Loss/ External Metal Loss	50,000
2001-005	17-Jan-01	Hardisty, AB	1968	Crude	Cracking/ Fatigue	3,800,000
1999-030	20-May-99	Regina, SK	1968	Crude	Cracking/ Fatigue	3,123,000
1996-009	27-Feb-96	Glenavon, SK	1968	Crude	Metal Loss/ External Metal Loss	800,000
1995-061	13-Nov-95	Langbank, SK	1965	Crude	Cracking/ Fatigue	768,000
1995-025	16-Jun-95	Windthorst, SK	1968	Condensate	Metal Loss/ External Metal Loss	Not specified
1994-057	03-Oct-94	St. Leon, MB	1963	Oil & products	Other Causes/ Improper Operation	4,000,000
1992-001	02-Jan-92	Cromer, MB		LVP	Metal Loss/ Internal Metal Loss	125,000

Source: NEB http://www.neb-one.gc.ca/safety/PipelineRuptureData/index_e.htm

Cause	Frequency	% of Total Damages
• Excavation	14.7%	12.0%
• Natural Forces	4.8%	3.5%
• Other Outside Forces	4.4%	2.8%
• Materials or Weld Failure	16.5%	41.0%
• Equipment Failure	15.4%	3.7%
• Corrosion	25.4%	23.8%
• Operations	5.1%	1.1%
• Other	13.6%	12.1%

“Natural forces” include seismic events. The relative seismic hazard rating for Carrier Sekani territory is considered low to moderate⁶¹, although about a dozen earthquakes of magnitude 2.5 or larger are on record to have occurred within 250 kilometres of where the Gateway pipeline would pass through Carrier Sekani territory. This includes a magnitude 5.5 earthquake that occurred near Prince George in 1986 that caused some minor damage⁶². This earthquake was felt through the B.C. Interior⁶³. The proposed route crosses several geologic faults in the territory, including the Pinchi Fault just east of the Stuart River⁶⁴.

Given that pipeline failures do occur and occur for a variety of reasons, some of which may not be wholly in the control of the pipeline operator, raises the need for Gateway to:

- Quantify the probability of a pipeline failure;
- Quantify the impacts of a pipeline failure; and
- Establish site-specific emergency response contingency plans to mitigate the effects of pipeline failure.

The Gateway Project is unique in that two pipelines, an oil pipeline and a condensate pipeline, parallel one another. It is important to note, therefore, that the risk presented by two pipelines is greater than the risk presented by a single pipeline. A rupture of both pipelines at a stream crossing would introduce two waste streams to the water body, potentially leading to additive effects that may be difficult to foresee.

Environmental Effects of Ruptures and Spills

An accident such as a rupture of one or both pipelines in the vicinity of surface water would have a high probability of causing adverse effects to water quality and aquatic biota. Although the properties of the synthetic crude oil and condensate are different, both are highly toxic to aquatic life. Synthetic crude oil is similar in composition to conventional crude oil, containing a complex mixture of aromatic hydrocarbons, naphthanes, and paraffins, but typically has lower

⁶¹ Natural Resources Canada. *Seismic Hazard Map 2005*. Geological Survey of Canada. Ottawa: 2005.

⁶² Natural Resources Canada. *Background on Earthquakes in Western Canada*. Geological Survey of Canada. Ottawa: 2005. On-line at <http://earthquakescanada.nrcan.gc.ca>

⁶³ Ministry of Transportation and Highways. *Natural Hazards in British Columbia*. Geotechnical and Materials Engineering Branch. Victoria: 1996.

⁶⁴ J.O. Wheeler and P. McFeely. *Tectonic assemblage map of the Canadian Cordillera and adjacent parts of the United States of America*. Geologic Survey of Canada. Map 1712A. Scale 1:2,000,000. Ottawa: 1991.

sulphur content. Oil itself is not water soluble, but components of it may accumulate in significant amounts in aquatic organisms and sediments⁶⁵. It may also bind to particulate and dissolved organic matter and be consumed or absorbed by aquatic organisms or relocated within surface and groundwater. Gateway has not specified the make-up of the condensate, but data from elsewhere⁶⁶ indicate it typically contains a number of toxic chemicals including pentane, benzene, toluene, xylene, and hydrogen sulphide. In general, condensate has low water solubility, and is highly flammable and volatile.

Given the planned pumping rate of 400,000 barrels per day (or 64 million litres/day), a rupture at a stream crossing lasting even 30 minutes would result in a discharge of more than 1,300,000 litres of oil to the stream, greater than the volume discharged in the Pine River rupture in 2000. A similar rupture in the condensate pipeline would discharge about 500,000 litres.

Spilled hydrocarbons pose serious threats to a wide range of terrestrial and aquatic organisms that are linked in the food chain and include human food resources. Spilled oil can harm the environment in several ways, including direct physical damages and the toxicity of the oil itself, which can poison exposed organisms. The severity of an oil spill's impact depends on a variety of factors, including the physical properties of the oil and the natural properties of the aquatic environment on the oil (weathering, evaporation, oxidation, biodegradation, and emulsification; US EPA 2006). Despite these variations, some generalizations can be made⁶⁷:

- When oil is released to the environment it will partition into various environment compartments – lower molecular weight compounds may dissolve in water or volatilize to the atmosphere, mid-weight fractions would spread out on the water surface or absorb to particles, and heavier compounds could either sink or agglomerate onto surfaces;
- Spills in aquatic environments may cause extensive mortality (death) to species that are not adapted to moving quickly out of the way. These include phytoplankton, crustaceans, and the larvae and eggs of fish and invertebrates. In contrast, species that are highly mobile may be able to avoid being affected;
- Crude oil is acutely toxic to aquatic organisms at concentrations ranging from 10 mg/L to greater than 100 mg/L. There is wide variation depending on the proportion of the oil that is water soluble since most of the acute toxicity is associated with that fraction;
- Polycyclic aromatic hydrocarbons (PAHs) have limited effect on acute toxicity, but are a concern because of their potential to bioaccumulate in aquatic organisms and thereby contribute to chronic toxicity; and
- Oil can directly impact wildlife and their habitats by coating birds or mammals (e.g. beaver, muskrat, and mink) with a layer of oil or smothering the bottom of a stream or wetland. This in turn can have a direct impact on benthic invertebrates, which are a major food source for fish.

⁶⁵ O.G. Mekenyan, G.T. Ankley, G.D. Veith, D.J. Call, D.J. *QSARs for photoinduced toxicity: I. Acute lethality of polycyclic aromatic hydrocarbons to Daphnia magna*. Chemosphere 28: 567-582, 1994.

⁶⁶ Burlington Resources. *Material Safety Data Sheet (MSDS) No. BR-003*. Condensate. Revised Nov. 2004.

⁶⁷ American Petroleum Institute. *High production volume (HPV) chemical challenge program: Test Plan – Crude Oil Category*. Submitted to the US EPA. November 2003.

Aside from the affects briefly described above, additional concerns would include but not be limited to the following:

- Combined or additive effects if both pipelines rupture at the same time (e.g. seismic events);
- Long-term chronic and reproductive effects to fish and wildlife, especially in slow-moving aquatic systems;
- Contamination of fish and wildlife food resources and potential human health effects (e.g. from eating contaminated traditional foods and medicine);
- Stress in Carrier Sekani individuals associated with concerns over contaminated traditional food & medicine sources;
- Additional ecosystem disturbance if it becomes necessary to repair a damaged pipeline (similar to construction impacts); and
- Air quality impacts if spilled oil or condensate is burned in place, either on the water or on the ground. In-situ burning has been used as a response strategy elsewhere in western Canada.

4.4 DECOMMISSIONING

The Gateway Pipeline would be expected to remain in operation as long as the oil sands region of northern Alberta is still producing synthetic crude oil and there is a market for that oil around the Pacific Rim. Therefore it could remain operational for 200 years or longer. When operations cease the aboveground infrastructure (e.g. pump houses) is typically removed, but the pipelines would remain buried in place. Potential impacts from decommissioning include effects of sites not being properly re-vegetated (e.g. on-going sedimentation, weed infestations, and long-term wildlife habitat loss), and soil and groundwater contamination from leaks (if there is any residual product in the pipelines) or from waste materials that are left behind or buried.

SECTION 5.0

SOCIO-ECONOMIC PROFILE OF THE CARRIER SEKANI TRIBAL COUNCIL NATIONS AND SOCIO-ECONOMIC IMPACTS OF THE PROPOSED GATEWAY PIPELINE

Introduction

The people of the Carrier Sekani Tribal Council (CSTC) member nations are divided nearly equally between those who live on and off-reserve. The census data available indicates that the total population of CSTC nations is over 5,000. This data is based on Indian and Northern Affairs Canada (INAC) figures of band membership. Because the Carrier Sekani traditional governance system is matrilineal and does not coincide with INAC guidelines of band membership, CSTC has estimated its actual membership to be approximately 12,000.⁶⁸ Moreover, the collective Carrier Sekani people who possess and exercise Aboriginal rights are not limited to the membership criteria of the Indian Act.

For the purposes of socio-economic profiling, the data available is based on the INAC population calculations. First, this section provides an overview of the demography, education and training levels, labour force participation, and income levels of CSTC member nations. This data is required to assess the potential of CSTC First Nations actualizing the claimed benefits of the Gateway Pipeline. Secondly, this section provides an analysis of the claimed economic benefits of the Gateway Pipeline, specifically for the CSTC First Nations. Thirdly, this section identifies some of the potential primary and secondary socio-economic impacts of the Gateway Pipeline.

In comparison to the larger population of British Columbia, CSTC First Nations are largely youthful communities with low levels of participation in the work force, lower levels of overall education, and lower levels of family and personal income. While many people do participate in the dominant resource industries of the region (agriculture, forestry, mining) they are not the largest employers of CSTC members. In addition to low levels of participation in the work force, low personal and family income suggests barriers to capital investment for small business start-up in CSTC communities.

5.1 THE CARRIER SEKANI TRIBAL COUNCIL MEMBER NATIONS PROFILE⁶⁹

The population of registered Indians of the CSTC First Nations on and off-reserves for 2004 is given in Table 5.1, and broken down by individual communities and gender in Table 5.2.

⁶⁸ See Carrier Sekani Tribal Council *Statement of Intent* (01/17/94). Submitted to the BC Treaty Commission.

⁶⁹ Socio-Economic Profile of Carrier Sekani Tribal Council Member Nations provided by Read & Associates Consulting Ltd. And Spark Management Consulting Inc. March 2006.

Table 5.1 Estimated and Projected Population of Registered Members, 2004
Population

	Total Members	On Reserve			On Crown Land				Off Reserve Members
		Own Band	Other Band	Total	Own Band	Other Band	No Band	Total	
Total	5,682	2,565	160	2,725	-	-	5	5	2,952
Male	2,787	1,327	82	1,409	-	-	2	2	1,376
Female	2,895	1,238	78	1,316	-	-	3	3	1,576

Source: Indian and Northern Affairs Canada

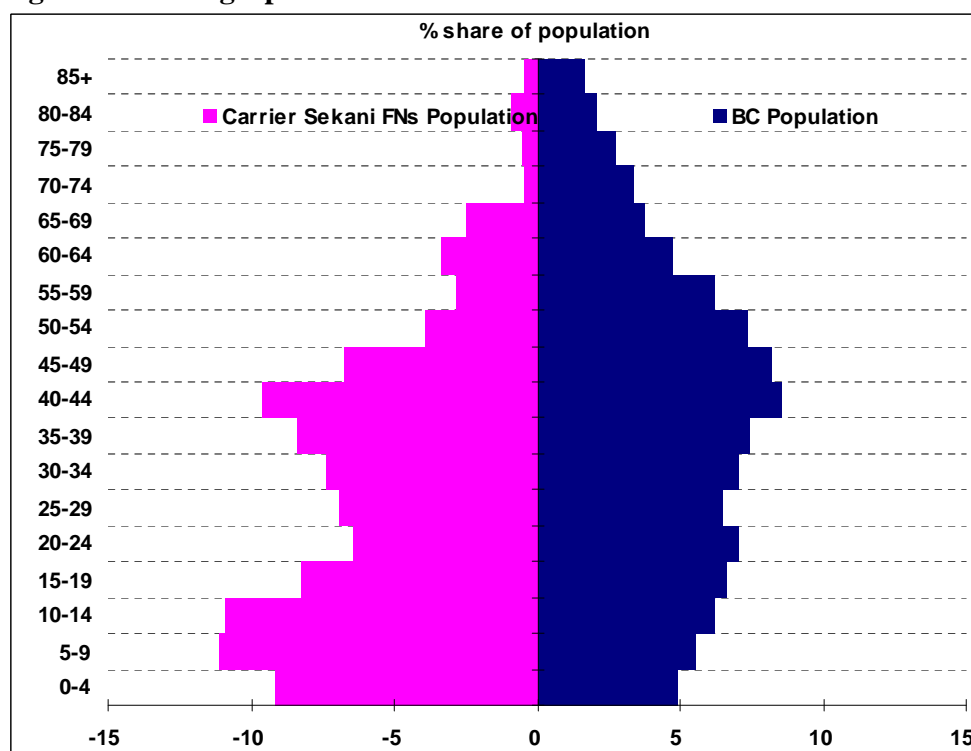
Table 5.2 Carrier Sekani First Nations Registered Member Population, 2004⁷⁰

		On Reserve	Off Reserve	Total
Burns Lake Indian Band	Total	39	56	95
	M	23	29	52
	F	16	27	43
Nadleh Whut'en Band	Total	259	147	406
	M	138	68	206
	F	121	79	200
Nak'azdli Indian Band	Total	624	1,016	1,640
	M	333	476	809
	F	291	540	831
Saik'uz First Nation	Total	539	309	848
	M	277	118	395
	F	262	191	453
Stellat'en First Nation	Total	219	184	403
	M	114	82	196
	F	105	102	207
Takla Lake First Nation	Total	327	300	627
	M	153	130	283
	F	174	170	344
Tl'azt'en Nation	Total	610	844	1454
	M	318	422	740
	F	292	422	714
Wet'suwet'en First Nation	Total	108	101	209
	M	53	53	106
	F	55	48	103
Carrier Sekani Tribal Total	Total	2,725	2,957	5,682
	Male	1,409	1,378	2,787
	Female	1,316	1,579	2,895

⁷⁰ The basic population data presented in the following tables are from Indian and Northern Affairs and the 2001 census data on six largest reserves - Nautley (Fort Fraser) 1, Nak'azdli (Necoslie 1), Binche 2 (Pinchie 2), Stellaquo (Stella) 1, Burns Lake 18 and North Tacla Lake 7A. The demographic distributions and labour force data of the six reserves from 2001 census profile were applied to the total population of the eight Carrier Sekani First Nations. Also, census data for each age-sex cell are rounded to multiples of five. Consequently, they may not add up to the totals. Calculations derived from 2001 census profile of CSTC reserves by Spark Group. This study was done prior to the departure of Stellat'en First Nation from the Carrier Sekani Tribal Council.

Figure 5.1 compares the population pyramid of the CSTC First Nations with that of the provincial population and Table 5.3 gives the approximate age-sex demographic distribution of members living on reserves.

Figure 5.1 Demographic Distribution Carrier Sekani First Nations and BC



Compared to the provincial population, Carrier Sekani First Nations have a very youthful population. For instance, the proportion of children under 14 is approximately 31% on the Carrier Sekani reserves compared to only 17% for BC. The proportion of young people living on the reserves decreases between the ages of 15 to 29 and increases in the 30 to 49 age brackets. The proportion of senior members 65+ years old on reserves is only about 5% compared to over 13% for the province.

Another notable demographic feature is the comparatively low proportion of females (48.3 percent) on the reserves (See Table 5.3). The low proportion of females is particularly notable among children 14 and under (45.5%) and among seniors (46%). Conversely, only 38% of the reserve population in the most active labour force age brackets of 20 to 39 years is men.

Table 5.3 Carrier Sekani First Nations Age-Sex Distribution, 2004

Total population by sex and age groups - 100% Data				
	Male		Female	
	Percent	Numbers	Percent	Numbers
Gender, total	51.7%	1408	48.3%	1317
0-4	4.9%	135	4.2%	115
5-9	5.8%	160	5.3%	145
10-14	6.7%	185	4.2%	115
15-19	4.0%	110	4.2%	115
20-24	2.2%	60	4.2%	115
25-29	2.7%	75	4.2%	115
30-34	3.1%	85	4.2%	115
35-39	3.1%	85	5.3%	145
40-44	5.4%	145	4.2%	115
45-49	3.6%	100	3.2%	85
50-54	1.8%	50	2.1%	55
55-59	1.8%	50	1.1%	30
60-64	1.8%	50	1.6%	45
65-69	0.9%	25	1.6%	45
70-74	0.4%	10	0.0%	0
75-79	0.0%	0	0.5%	15
80-84	0.9%	25	0.0%	0
85+	0.4%	10	0.0%	0

Labour Force

Carrier Sekani members on reserves face a low level of labour force participation and high level of unemployment compared to the provincial average.

Table 5.4 and Figure 5.2 summarizes the labour force status of Carrier Sekani reserves in relation to the provincial average for 2001, the latest year for which labour force data on population living on reserves is available. The labour force participation rate, defined as employed and unemployed as a proportion of population 15 years and older, for the CSTC reserves was only 53% compared to 65.2% for the province. The unemployment rate was a very high 30% compared to provincial average of less than 5.6%. Most telling, the employment rate - employed as a proportion of population 15 years and older, was only 37.5% compared to provincial average of almost 60%.

Table 5.4 CSTC Reserves Labour Force Characteristics 2001 Census

Labour Force Measure	Carrier Sekani Reserves	British Columbia
Unemployment Rate	30%	5.6%
Labour Force Participation	53%	65.2%
Employment Rate	37.5%	59.6%

Figure 5.2 Distribution of CSTC Labour Force

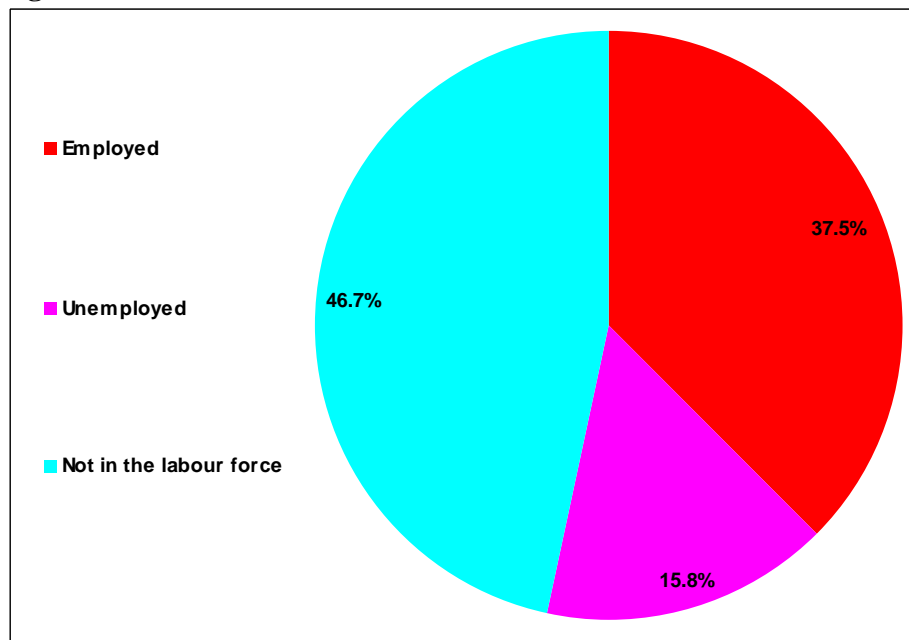


Figure 5.3 CSTC Labour Force by Occupation

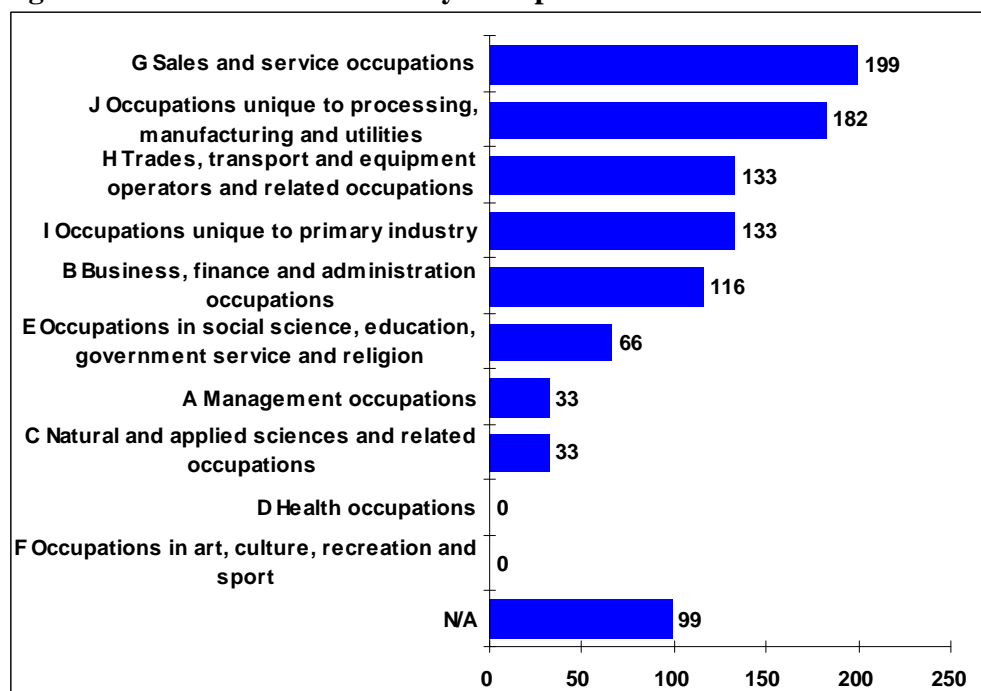


Figure 5.3 summarizes the CSTC labour force by occupation, with the predominance of employment being in sales and service occupations. Table 5.5 summarizes CSTC reserves labour force by industry. Public administration is the largest employer with 21% of the total labour force with another 13% employed in combined health and education services. Manufacturing (17%) and agriculture, forestry, fishing and trapping (13%) are other large employment sources.

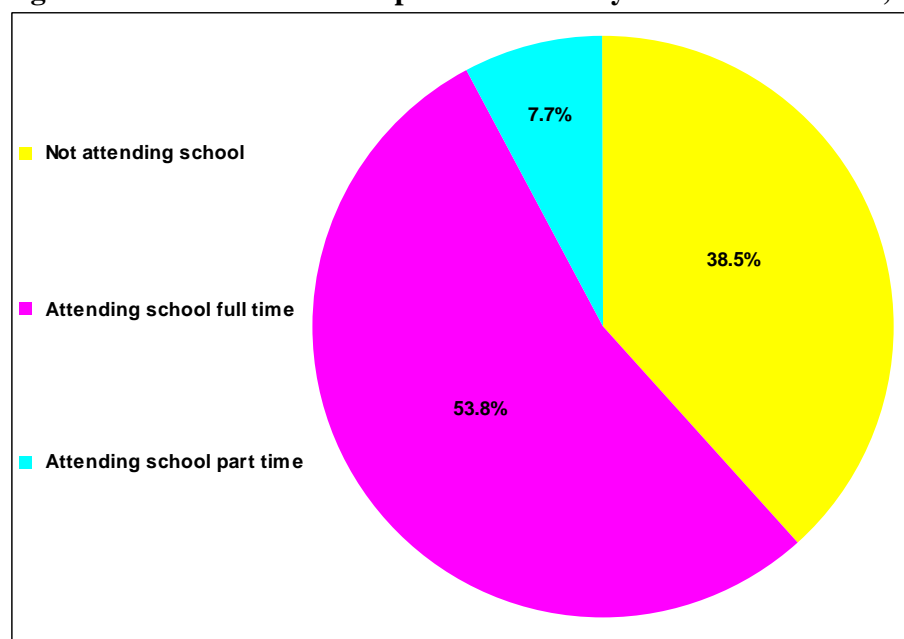
Table 5.5 CSTC Reserves Labour Force by Industry

Labour Force by Industry	Number of People	%
Industry - Not applicable	106	11%
11 Agriculture, forestry, fishing and hunting	133	13%
21 Mining and oil and gas extraction	27	3%
22 Utilities	0	0%
23 Construction	27	3%
31-33 Manufacturing	172	17%
41 Wholesale trade	27	3%
44-45 Retail trade	27	3%
48-49 Transportation and warehousing	0	0%
51 Information and cultural industries	0	0%
52 Finance and insurance	0	0%
53 Real estate and rental and leasing	0	0%
54 Professional, scientific and technical services	0	0%
55 Management of companies and enterprises	0	0%
56 Administrative and support, waste management & remediation services	80	8%
61 Educational services	53	5%
62 Health care and social assistance	53	5%
71 Arts, entertainment and recreation	27	3%
72 Accommodation and food services	27	3%
81 Other services (except public administration)	27	3%
91 Public administration	212	21%
All industries	889	89%
Total 2004 Labour Force	995	100%

Education

The pattern of school attendance (Figure 5.4) for young people 15-24 living on CSTC reserves in 2001 was similar to that of the province. 53.8% were in school full time (53.8% for BC) while part time attendance at 7.7% was some what lower than the provincial average of 9.2%.

Figure 5.4 CSTC Reserves Population 15-24 by School Attendance, 2001



CSTC on reserve members had considerably lower educational achievements compared to the provincial average (see Table 5.6 & Figure 5.5). The proportion of university graduates among members was only 4% compared 26.8% for the province and college diploma holders were 12% compared approximately 24% for the province. Proportion of trades was similar to that of the province while proportion of population with grades 9-13 and less than grade 9 education were considerably higher than the provincial average.

Table 5.6 CSTC Member Education Achievements, 2001

Highest Level of Education	CSTC Number of People	CSTC %	BC %
Less than grade 9	354	21%	6.6%
Grades 9 to 13	820	50%	29.9%
Trades certificate or diploma	209	13%	12.8%
College	193	12%	23.9%
University	64	4%	26.8%
Total 2004 Population (20+)	1640	100%	100%

Figure 5.5 CSTC Members on Reserves by Educational Achievement, 2001

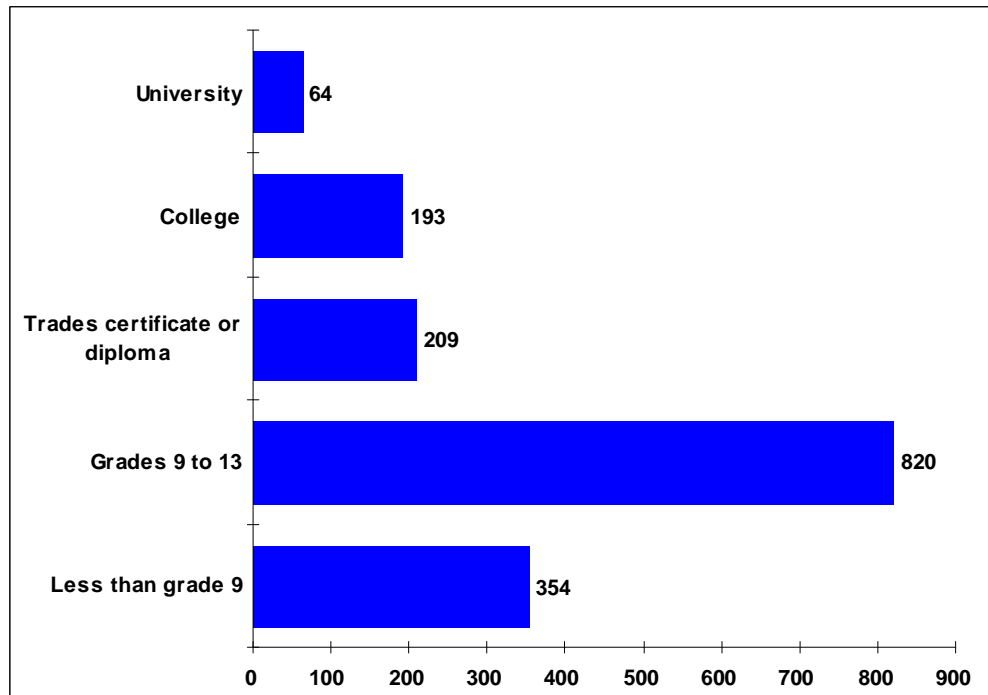


Figure 5.6 CSTC Reserve Members Income by Source, 2000

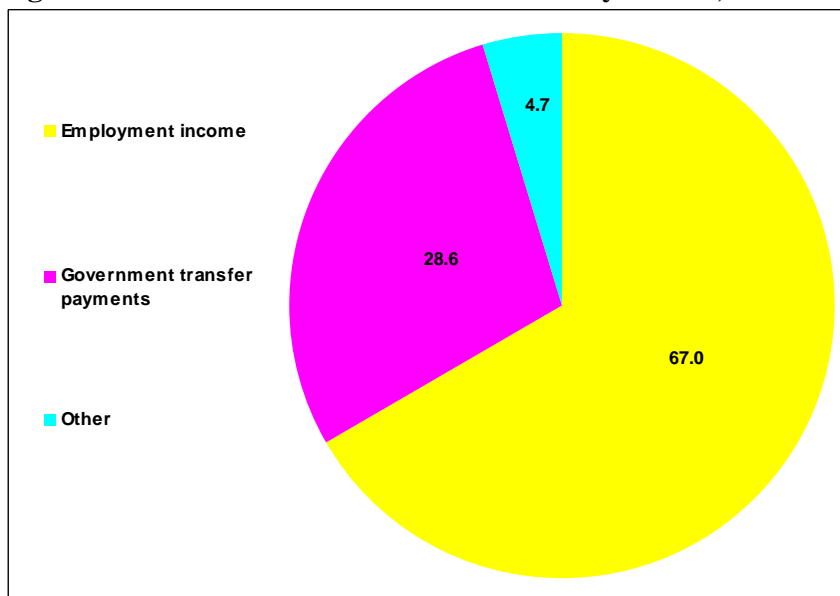


Figure 5.6 shows the various sources of income for CSTC on-reserve members, with the majority coming from employment income, but nearly 30 per cent coming from government transfer payments. Table 5.7 shows employment income for CSTC members living on reserves in 2000. The average employment income for those who worked was approximately \$16,900. Predictably, employment income for members with full-time employment was substantially higher (approx. \$30,200) compared to those with part-time employment (approx. \$13,000). Males earned an average employment income of approx. \$20,400 considerably more than female income of approx. \$12,600. Table 5.8 breaks down the income distribution of CSTC members 15 years and older by income brackets.

Table 5.7 Average Employment Income of CSTC Members on Reserves, 2000

Employment income			
\$	Males	Females	Total
Full Time	36,519	19,922	30,197
Part Time	14,379	11,460	13,035
Overall	20,413	12,625	16,902

Table 5.8 CSTC Members 15 years and older Income Distribution, 2000

	Male	Female	Total
Without income	8%	15%	9%
Under \$1,000	11%	7%	9%
\$ 1,000 - \$ 2,999	14%	7%	12%
\$ 3,000 - \$ 4,999	11%	15%	10%
\$ 5,000 - \$ 6,999	8%	0%	6%
\$ 7,000 - \$ 9,999	8%	11%	9%
\$10,000 - \$11,999	5%	7%	6%
\$12,000 - \$14,999	0%	11%	7%
\$15,000 - \$19,999	5%	11%	6%
\$20,000 - \$24,999	5%	7%	6%
\$25,000 - \$29,999	5%	7%	6%
\$30,000 - \$34,999	8%	0%	4%
\$35,000 - \$39,999	0%	0%	0%
\$40,000 - \$44,999	0%	0%	3%
\$45,000 - \$49,999	5%	0%	0%
\$50,000 - \$59,999	5%	0%	3%
\$60,000 and over	0%	0%	3%
With income	92%	85%	91%

5.2 PRIMARY SOCIO-ECONOMIC IMPACTS⁷¹

Large, managerially complex, technologically sophisticated, industrial projects designed to exploit a natural resource when constructed near small, rural, isolated, homogeneous, often declining, agriculture or hunting and trapping-based communities leads to overwhelming social impacts. Project-related decision making is almost always external to the community and foreign to its systems of leadership or governance. Project-related technology, goods and service needs, and labor demands are well beyond the community's capacity to supply.

Projects are, essentially, foreign transplants that would exist for a limited time period that is further divided into three distinct phases. A short lived construction phase with high levels of employment and heavy demands on the community, its infrastructure, and leadership is followed by a longer operations phase that uses fewer, more specialized workers and makes lighter, more constant demands. The final phase, decommissioning, brings the project to its inevitable close.

In addition to supply and service opportunities, the project may create short-term demands on community and regional services and infrastructure such as: health services, police and public safety services, roads (access to and from the project and logistic support for equipment and materials), railway infrastructure, airports, and regional landfills.

Demographic Change: Impacts of a Boom and Bust Development Cycle

Social impact assessment and resource management research indicates that the Gateway Pipeline project has the potential to generate socioeconomic problems. In particular, such projects typically create a boom-bust cycle characterized by a short-term increase in employment followed by a rapid decline as construction is completed. This short-term stimulus can lead to large-scale in-migration that can stress community infrastructure through significant short-term increases in population and inflation effects.

Demographic change concentrated in time and space is fundamental to driving the social impact - it is the first and most germane cause of a wide range of other socioeconomic effects and it is the point where impact theory, assessment practice, and the original boomtown concerns all meet. Determining demographic effects of project development is one of the most important steps in the socioeconomic assessment process because estimating demographic impacts is essential for assessing other population-related effects such as public service demands and fiscal impacts.

⁷¹ This section is based primarily on two key sources:

Thomas Gunton, et al. *Managing Impacts of Major Projects: An Analysis of the Enbridge Gateway Pipeline Project*. (Simon Fraser University, School of Resource and Environmental Management, June 2005).

and

Catharine Read and Har Singh. *Socio-Economic Impact of Enbridge Gateway Pipeline Proposal on Carrier Sekani Tribal Council First Nations*. (Read & Associates Consulting Ltd. and Spark Group Management Consulting Inc., March 2006).

The main phases of socio-economic impacts can be characterized as follows:

- Demographic effects come first, as products of new labor demand. Economic impacts come second, as products labor demand and the demographic effects resulting from economic impacts. Economic impacts amplify the demographic effects (e.g., via secondary or tertiary demand).
- Infrastructure and public service effects come next. These can include new demands for private and public housing, and for infrastructure and services associated with education, police, fire and emergency services, transportation, water, sewer and sanitation, health and social services, criminal justice, recreation, and libraries. These effects are due primarily to demographic changes, although some interactions are seen as more complicated.
 - For example, rapid in migration may create housing booms that increase the tax base along with demands for roads, schools, and police protection. Conversely, the bust brings empty housing, a shrinking tax base, overbuilt schools, and lingering bonded indebtedness.

Impacts on Infrastructure

The influx of population can result in strains on community infrastructure, recreation facilities, and increased traffic. Construction activity can result in a significant increase in large truck traffic on highways and roads. Again, the degree to which these are negative impacts will depend upon Enbridge's decisions regarding the housing of the construction workforce, its workforce policies in construction camps and its materials supply policies.⁷²

Impacts on transportation infrastructure generally occur during project construction phases, as increased demands are placed on highways, railways, and air transportation services. Adverse effects on energy and utilities infrastructure in communities may be generated as a result of worker in-migration. Increases in population in certain communities may result in increased demand on water treatment, sewage, and solid waste treatment and disposal, and power supplies.⁷³

The Project crosses a combination of rural and remote areas. Therefore, personnel will use:

- Commercial accommodations in local communities, where commuting distances are manageable;
- Accommodations in camp settings, where long commute distances would be required. Transportation from camps to the work site will be by crew buses on existing provincial, municipal and resource roads.

The Project is not expected to noticeably affect medical personnel and facilities or cause delays or disruptions to the level of medical service presently available to area residents because there will be trained personnel, equipment, and vehicles at the pipeline work sites to provide

⁷² Gunton, 58.

⁷³ Gunton et al, citing: Aboriginal Pipeline Group et al. 2003, 2004; B.C. Gas Utility Ltd. 1998; Dixon 1978; EnCana Ekwan Pipeline Inc. 2003, Dixon 1978.

emergency medical treatment and transportation to the nearest doctor and medical facility. Community interactions will be experienced during operations, but at a lower level. Inspection and maintenance during project operations will involve fewer people and demands on community services and infrastructure will be less.

Fiscal Impacts

A fourth category is fiscal impacts. Fiscal impacts are products of project activities, labor demand, and demographic effects. These impacts can include increased local revenues (e.g., fees and property and sales taxes). On the negative side, they include increased expenditures to meet new infrastructure and public service demands. Again, this focus on housing, public infrastructure, roads, schools, social services, and public safety parallels concerns endemic to boomtown literature.

Communities and leadership that have significant expectations for economic spin-offs tend to experience unanticipated fiscal impacts as a result of the project, which have not been sufficiently planned for. Communities are not typically ready for both the boom, and the eventual bust in their local economy. The sharp rise during the construction phase, and subsequent decline in economic activity resulting from pipeline development will exacerbate already fragile economies that are in need of stabilization, as opposed to drastic fluctuations.

A typical economic impact arising from the construction phase is local inflation. Inflation tends to hurt lower income people more than higher income people, thus again disproportionately affecting the members of the CSTC more than their non-Aboriginal neighbors. Increased demand due to the rapid influx of workers to local communities can create shortages of key goods and services. Shortages, in turn, generate price inflation that decreases real income of local residents. For example, rapid growth in a community typically may cause inflation in housing prices, accommodations, and rents, leading to displacement of low-income tenants, an unsustainable real estate market, and an oversupply of housing after the construction period ends.

Once the construction of the Gateway project is completed, the local and regional economies will be hit. Thomas Berger's Mackenzie Valley Pipeline Inquiry, perhaps the most studied assessment of pipeline impacts in Canada on Aboriginal and northern people, noted that local economies collapse with the completion of the pipeline construction phase.

Social & Cultural Impacts

The last category generally addressed is social and cultural impacts, which includes such topics as the distribution of effects within the community (e.g., who benefits and who is burdened), impacts to specific populations (e.g., effects of inflation on the elderly, the alienation of youth, the isolation of trailer park life); community cohesion or identification, effects on crime and other dysfunctional behaviors (both actual rates and fear); and effects on environmental attitudes. Social and cultural impacts are actually a residual category comprised of a variety of topics that share few methodological or subject-area similarities.

As indicated in the overview of case studies on First Nations' experience with oil and gas development, one of the most significant social impacts is the rise in alcohol and drug abuse. With an influx of money and outside labour, small isolated communities are often exposed to new and more dangerous drugs and increased levels of alcoholism. With rises in these activities, violent crime also tends to increase.

Impacts on Other Sectors of the Economy

Potential impacts on other economic sectors as a result of pipeline projects may also be significant. Adverse effects may be generated on other land and resource use interests including forestry, mining, agriculture, commercial fishing, recreation, tourism, and protected areas. For example, pipeline development has the potential to decrease land available for timber harvesting, disrupt existing forest industry practices, and contribute to the direct loss of timber resources. With the rapid timber harvesting occurring as a result of the mountain pine beetle epidemic, CSTC First Nations are becoming more involved in the forest industry in this region. There are concerns that the Gateway Pipeline may on the one hand decrease land available for First Nations forestry, but on the other hand, there are equal concerns that the pipeline will also open up additional lands for clearing and access.

As CSTC First Nations plan for community sustainability beyond the mountain pine beetle harvesting peak, the tourism sector is one that holds potential for growth. The tourism sector is another industry which may also be negatively affected by the Gateway Pipeline Project, due to environmental degradation, including ruptures and spills.⁷⁴ Similar to the forest industry, project development may also result in decreases in land available for tourism activities, and in the quality of tourism and recreation activities.

Inflation effects mentioned earlier may also create negative impacts on the tourism industry. Due to an influx of migrants seeking project employment, increased demand for housing and accommodation often leads to inflated prices. The tourism sector relies on local accommodations businesses, which will be in higher demand for housing foreign workers on the pipeline.

5.3 SECONDARY SOURCE OF IMPACTS

A pipeline, once constructed, may make an otherwise marginal oil or gas field profitable—resulting in more landscape disruptions and linear disturbances. Access roads and right of ways can stimulate other mineral exploration, forestry and tourism in the area. The proposed right-of-way for the Gateway Pipeline transects the Nechako and Bowser/Sustut Basins which have been identified by the Government of British Columbia as potential areas of oil and gas development. (See Figure 5.7)

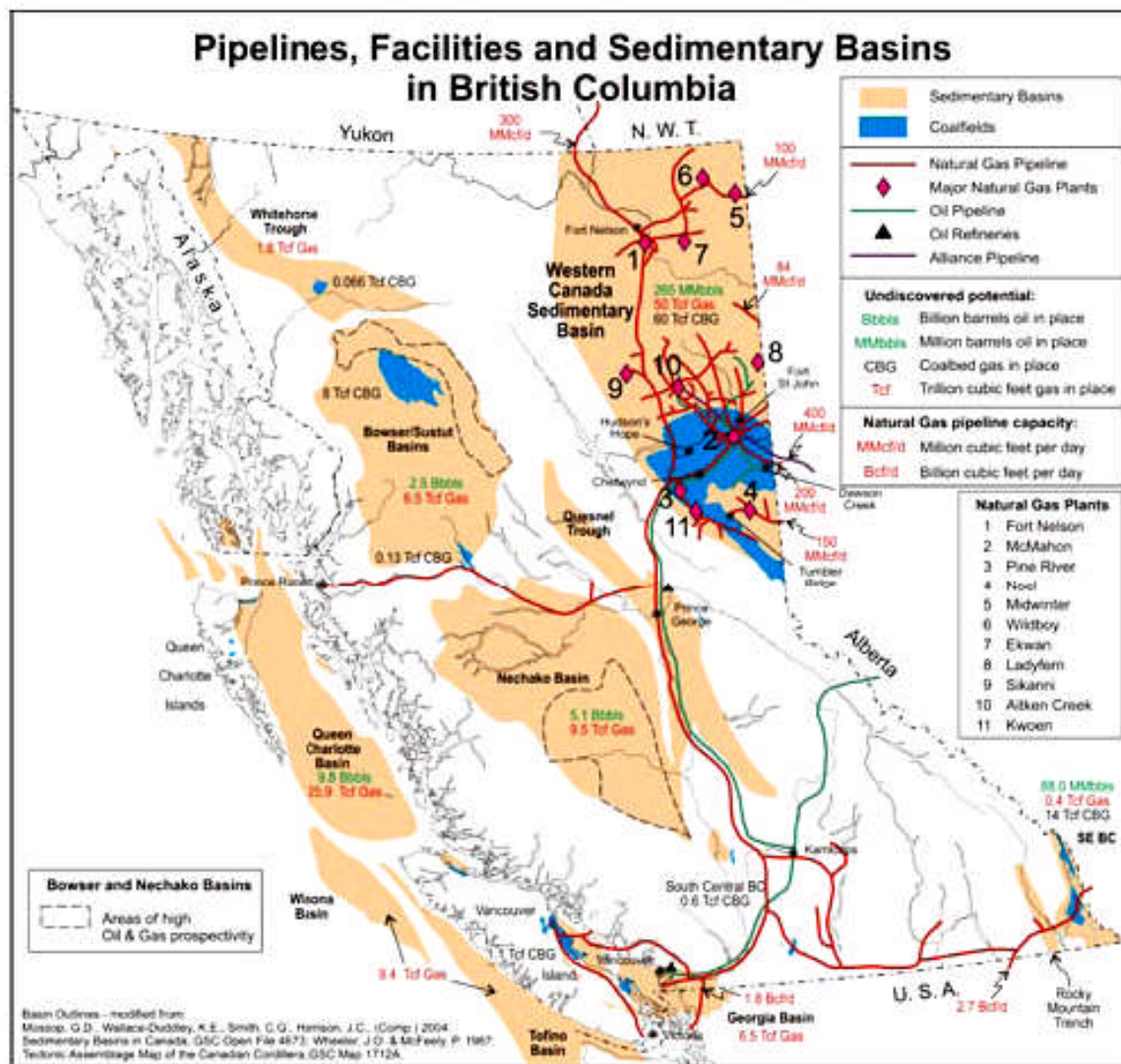
As indicated in the previous section on other First Nations' experience with oil and gas development, once an infrastructural development such as a pipeline is in place, the rate of development tends to accelerate. The result can be adverse impacts on water quality, fish and

⁷⁴ Gunton citing: OOGRG 2004.

fish habitat. For the year 1996, environment ministry officials estimated 9000 stream crossings were needed for seismic lines, pipelines and road developments. The number will likely be much larger in the future because of the provincial government's policy to dramatically increase production.

In the federal or other review processes for the Gateway pipeline, the secondary sources of impacts, especially increased potential for oil and gas development, must be addressed. In addition to assessment of the cumulative impacts of the proposed pipeline, the cumulative impacts of such development must also be assessed. Based on the case studies in this document, First Nations are denied the appropriate time to either assess potential impacts of oil and gas, nor to participate in the land use decision making processes.

Figure 5.7 Pipelines, Facilities and Sedimentary Basins in BC – Source BC Government



5.4 ANALYSIS OF CLAIMED ECONOMIC BENEFITS

The Enbridge Preliminary Information Package makes several claims regarding the potential economic benefits that would result from the project. However, when assessing these potential benefits, CSTC First Nations highlight two key points. First, any development of natural resources must take into account more than simply economic growth. Justification of a resource development project must also include a cost-benefit study, to assess whether benefits of project development outweigh costs. Second, economic impacts of projects are often overstated, due to an assumption that the capital and labor used in a project would otherwise not be employed; thus gross impacts instead of net impacts are forecast.⁷⁵

Employment

The principal claim of economic benefit is that of job creation. The bulk of the jobs created would be in the construction phase of the project. Table 5.9 shows Enbridge's projected job creation for the construction and operation of the Gateway Pipeline.

Table 5.9 Average Employment for Gateway Construction

	2008	2009	2010
Stations	67	173	33
Tanks	66	138	17
Marine Terminal	42	57	8
Pipeline - in B.C:			
Logging	62	33	10
Site Development	1	1	0
Stockpiling	5	9	0
Construction	242	544	113
Camps	3	75	14
Inspections	17	39	7
Surveying	10	22	3
Non-destructive Testing	5	18	3
Reclamation(B.C.& Alta	7	20	10

Source: Enbridge PIP

The construction jobs are short-term, unsustainable jobs that will occur during a relatively brief period, primarily between the summer of 2008 and the winter of 2010.

⁷⁵ Gunton citing: OOGRG 2004.

The data highlighting the labour force participation and levels of education and training of the CSTC First Nations indicates that the probability that First Nations will benefit significantly from this employment is quite low. While unemployment rates on the CSTC Reserves are extremely high at 30 percent, and employment rates are very low at 37.5 percent, the Labour Force profile of the CSTC people does not lend itself to many of the skilled jobs on the Gateway Pipeline. The long term sustainable employment resulting from the Gateway Pipeline is meager. There will be 75 jobs in the operations phase, distributed as follows: 45 for pipeline and marine terminal operations in B.C. and 30 for pipeline operations in Alberta. With a peak workforce of only 45 long-term sustainable jobs throughout British Columbia, few if any of these permanent jobs are likely to benefit the CSTC people.

The data highlighting the labour force participation and levels of education and training of the CSTC First Nations indicates that the probability that First Nations will benefit significantly from these employment opportunities is quite low.

While unemployment rates for the communities are high at 30 per cent, and employment rates are low at 37.5 per cent, the Labour Force profile does not lend itself to many of the skilled jobs on the Gateway Pipeline.

Based on past experience in other jurisdictions, First Nations benefit very little from the jobs and economic spin-offs of major capital projects. When First Nations do obtain jobs on these major projects, the jobs tend to be at the bottom of the skill ladder, with little long term benefits or ensuing transferable skills to the worker. Most of the mid-range to highly skilled positions are filled by workers from outside the region. This effect was noted in the research on the impacts of the Norman Wells to Zama pipeline where it was found that the training for the pipeline construction prepares Aboriginal people for non-status positions, and gives them skills that can only secure sporadic employment, with skills that are often not transferable.

In addition, employment opportunities generated by large-scale projects largely benefit in-migrants. In-migrant workers typically possess necessary project employment skills, while local and Aboriginal people are rarely employed due to mismatches between employment requirements and local skills, lack of training, or unwillingness to work on project activities.⁷⁶ For example, a recent impact assessment of the Mackenzie Valley pipeline in the Northwest Territories concluded that:

*Project construction will require a large workforce with a variety of skills, and most of the construction work will take place during four brief winter construction months. Given the construction scenario and the capacity limitations of the available Northwest Territories labour force, many of the required skills will not be readily available in the regions. As a result, most of the required project labour will have to be brought in from outside the Northwest Territories.*⁷⁷

⁷⁶ Gunton citing: Cocklin and Kelly 1992; Detomasi 1997; Dixon 1978; Hua 1985; Kennett 1999; Yamaguchi and Kuczek 1984.

⁷⁷ Gunton citing: Aboriginal Pipeline Group et al. 2004: 6-4

For those First Nations people who do work on the pipeline, the economic leakages from their communities to non-Aboriginal communities are very high. This again is due to their narrow, underdeveloped economies.

The long term sustainable employment resulting from the Gateway Pipeline is meager. There will be only 45 jobs created throughout British Columbia during the operations phase. These include the operation of the marine terminal in Kitimat. Few, if any, of these permanent jobs are likely to benefit Carrier Sekani people.

Regional Multiplier Effects

Proponents of major projects often claim that multiplier effects will benefit regional economies. While there will be regional multiplier effects associated with the pipeline, again these will not significantly benefit CSTC First Nations. Firstly, the regional employment multipliers and income multipliers associated with oil and gas and pipeline construction are very low, due to the specialized nature of the inputs into the sector (backward linkages) and the high proportion of in-migrant workers and their spending patterns (final demand linkages).

The Offshore Oil and Gas Research Group explained multiplier effects in the following manner:

*Potential multiplier effects can be divided into four categories: forward linkages involving processing of natural resources prior to export; backward linkages involving production of inputs such as resource machinery and transportation infrastructure required to extract oil and gas; final demand linkages involving production of consumer goods and services to meet the regional needs of those employed in the oil and gas sector; and fiscal linkages involving the expenditure of rents and profits generated by oil and gas. Backward and forward linkages are sometimes classified as indirect impacts, and final demand and fiscal linkages as induced impacts.*⁷⁸

Due to the highly technical and specialized nature of production processes, equipment and materials needed for development of projects are often produced in other areas, thus minimizing backward linkages. For example, one report indicates that only 0.26 additional jobs as a result of backward linkages are created for each job generated in the oil and gas industry in northeast B.C.⁷⁹ (B.C. Stats). Furthermore, forward linkages⁸⁰, including oil and gas processing and refining, are limited since many of these activities are undertaken in other regions. In terms of final demand linkages, OOGRG (2004) noted the following:

⁷⁸ Offshore Oil and Gas Research Group (OOGRG). *A Review of Offshore Oil and Gas Development in British Columbia*. Burnaby, BC: Simon Fraser University, School of Resource and Environmental Management, 2004.

⁷⁹ British Columbia. B.C. Stats. 2004a. *British Columbia's Heartland at the Dawn of the 21st Century, 2001 Economic Dependencies and Impact Ratios for 63 Local Areas*. Victoria, B.C.: Ministry of Management Services.

⁸⁰ OOGRG (2004)

Final demand linkages are determined by the income and expenditure patterns of oil and gas employees. Estimates for northeast B.C. indicate that each job in the oil and gas sector generates an additional 0.31 jobs to provide goods and services to workers (B.C. Stats). When combined with indirect impacts based on backward linkages, each job in the oil and gas sector generates an additional 0.57 jobs in the region.

The purchase of local goods and services is also an economic benefit identified by the Gateway Preliminary Information Package. Enbridge estimates local business opportunities in Alberta and British Columbia will total \$165 million. Again, it is anticipated that CSTC people will experience very limited benefits from this expenditure. The Carrier Sekani Tribal Council has made requests to Gateway for a break-down of this revenue, but has not received such information to date. The fact that First Nations' economies are narrow and underdeveloped compared to their non-Aboriginal neighbors results in few if any business opportunities for First Nations to supply goods and services to the project. Furthermore, the material requirements of the pipeline for aggregate and timber will likely be supplied from Crown lands. These Crown lands and resources represent resources over which First Nations have title and rights, but over which the Crown has claimed control.

The economies of the CSTC First Nations are mixed economies, based on a combination of limited participation in the dominant wage economy and participation in the traditional economy. The average employment income for people on CSTC Reserves is \$16,900 and of those people who do have employment income, for over three-quarters this income is derived from part-time work.

Government Revenue

The Gateway Pipeline Preliminary Information Package notes that the annual property taxes in Alberta and B.C. for the two pipelines are estimated at over \$25 million. While this benefits other governments' coffers, it does not directly assist the people of the Carrier Sekani Tribal Council, who do not have powers of taxation in the territories. As treaties have not been settled in the CSTC region, none of the benefits from the Enbridge pipeline's use of the land and resources to which the CSTC claim Aboriginal title and rights will in fact flow to the CSTC or its member Nations.

SECTION 6.0

IMPACTS ON CARRIER SEKANI ABORIGINAL RIGHTS AND TITLE

Introduction

This section identifies some of the impacts that the proposed Gateway Pipeline would have on the Aboriginal title and rights of the Carrier Sekani. In many cases, impacts are described by the people themselves. Through the process of drafting an Aboriginal Interest and Use Study, many community members have been informed of the proposed project (through the information provided in the *Preliminary Information Package, Enbridge Gateway Project*). Through community meetings and interviews with trapline and *Keyoh* holders and Elders, have voiced their concerns over the potential effects on their way of life, the environment, their role in key decision making on the territories, and questioned what benefits would arise for their communities should the pipeline go through. One common concern made apparent is that the pipeline not be viewed in isolation, but that it be assessed in the context of the cumulative impacts that already exist in the territories. A summary of these cumulative impacts is found in Section Two.

Because Aboriginal title is a right to the land itself, any proposed development will impact Aboriginal title. Moreover, the exercise of the Aboriginal rights of the Carrier Sekani relies entirely on the health and integrity of the environment. This section expands on the physical impacts identified in Section Five by linking environmental impacts with the subsequent impact on Aboriginal title and rights.

6.1 IMPACTS ON ACTIVITY SITES

The details and magnitude of likely impacts on these activity sites and on others within the *Keyoh* of the Carrier Sekani could not be adequately addressed at this time in this study. As noted in the environmental Section 4.0, Gateway has refused to provide baseline data and environmental studies in advance of the preparation of this AIUS. Therefore this outline must be considered preliminary.

Detailed information and study will be required for each of the activity sites identified, and each of the environmental effects outlined in section 4.0 must be addressed once proper baseline data is made available. Further studies, specifically in respect to identified interests, are likely to be required if existing studies were not designed with awareness of the interests outlined here. Gateway did not design their baseline studies in consultation with CSTC.

Accordingly, if the pipeline project is allowed to proceed further, a Phase II AIUS would be required to examine in detail the specific impacts on the interests identified. Once appropriate baseline data has been made available and proper studies completed, it will be necessary to outline in detail the potential magnitude of the impacts, and for CSTC to return to the communities of the Carrier Sekani First Nations to consider and determine the results of the studies.

It would not be safe for regulatory authorities to proceed further on the strength of the information presently available. A Phase II AIUS will be required to appropriately determine and outline impacts before regulatory hearings proceed.

6.2 IMPACTS ON SOIL AND TERRAIN

Throughout the construction phase of the pipeline project, soil properties would be disrupted and altered. In addition, soil may become contaminated by vehicle fluids, which could also be carried with runoff into local water bodies. These two factors would reduce plant growth and limit the ability of vegetation to become established along the right-of-way.

Throughout the operation of the pipeline there is the potential erosion and sedimentation, as well as reduced terrain stability, which could lead to landslides and other types of mass movement, and loss of root strength.

Any loss of vegetation would impact the gathering of medicinal plants, berries and roots that are vital to the health, well-being and culture of the Carrier Sekani. The plants, medicines and berries identified in Section Three are found throughout the territories, and specific sites of gathering have been identified in the Activity Sites portion of Section Two.

The run-off of contaminated soils into the local water bodies would affect the integrity of the fish species that are of vital importance for the Carrier Sekani, which would be further compounded by the additional direct impacts to water quality, fish and wildlife. The potential of a landslide adjacent to the pipeline increases the chance of pipeline rupture, which is a major concern of the Carrier Sekani.

The chemical spraying in the area is already affecting moose, fish and plants. The pipeline will cause further problems.

-Dickson Alexis, Saik'uz
First Nation

6.3 IMPACTS ON VEGETATION

The territories of the Carrier Sekani are at the heart of the mountain pine beetle epidemic, and have been significantly impacted by forest fires in recent years. The construction activity of the pipeline would add to the risk of wildfires, which would further impact vegetation throughout the territory. In addition noxious weeds and invasive species of plants are known to be carried into areas on vehicles, and in many cases introduced through replanting efforts.

Throughout the life of the pipeline, there would be loss of old-growth forest and general reduced biodiversity. In vegetation management, the use of herbicides would likely be an option for the company. Carrier Sekani Tribal Council currently has a moratorium on pesticide and herbicide spraying within the territories because of the significant impact on plants, medicines and berries. As indicated above, any impact to the medicines, plants, and berries throughout the territories threatens the health, well-being and culture of the Carrier Sekani.

6.4 AIR AND NOISE POLLUTION IMPACTS

Carrier Sekani community members have expressed concern over the impact on wildlife that noise pollution would have resulting from construction activities. While the construction period is temporary, relocation of wildlife due to noise would cause long-term effects if the disturbance occurs during critical reproductive periods.

Air pollution during the construction phase resulting from the high levels of aerosol particulates (dust) and emissions from slash burning and construction equipment, will contribute to increased respiratory problems especially in younger children and Elders. During the operation of the pipeline, emissions from pumping stations and maintenance vehicles will also affect water quality. This is compounded with the fact that the Carrier Sekani communities have very youthful populations (see Section 5). The Carrier Sekani value greatly their Elders and their youth. Thus, any threats to their health threaten the well-being of the entire community.

I don't think that they can come and guarantee that there will be no environmental damage to this area.

Even if they put it on paper that future damage they will be responsible for it. In the future they probably wouldn't even bother. As an example, the head of the Kenney Dam, said that if there were any environmental damage, they would take ownership of the damage. Now the Nechako River has been cleared. There is erosion through reserve #1 caused by the Nechako River. The Nadleh River runs into the Nechako. The Nechako River levels went down, the drainage from Fraser Lake by Nautley River caused a lot of erosion on our land. We tried to go after Alcan for damages and they refused to do anything.

-George George Sr,
Nadleh Whut'en First Nation

6.5 IMPACTS ON WATER QUALITY

With a potential to cross 600-700 streams in Carrier Sekani territory, the proposed pipeline directly threatens the vitality of the watersheds that sustain the Carrier Sekani. In addition to streams and rivers, the pipeline would also cross numerous wetlands, which are prime habitat for numerous species on which the Carrier Sekani rely for food and cultural goods such as clothing and drums.

Throughout the construction phase, the turbidity levels would increase, impacting aquatic life. Any significant increases in turbidity have immediate impacts on fish, specifically Chinook salmon. Impacts on fish are discussed further below.

Watersheds within the Carrier Sekani territories have already been impacted by dams, mining operations, and other development. The construction of the pipeline would further threaten vulnerable watersheds on which the Carrier Sekani rely for survival.

In addition to turbidity, the discharge of drilling mud, industrial waste, and temporary sewerage facilities would all affect overall water quality. Once again, the cumulative impacts of the mountain pine beetle have already resulted in changes in groundwater levels and increases in water temperatures from loss of forest cover. These would be exacerbated by the clearing of the right-of-way and access roads.

All of these impacts would threaten already vulnerable fish stocks vital to the Carrier Sekani.

6.6 IMPACTS ON FISHERIES HABITAT

The Carrier Sekani have Aboriginal fishing rights protected under the Canadian constitution. The exercise of rights has been limited by existing impacts from development and general decline in stocks of salmon, white sturgeon and other species.

Carrier Sekani members are concerned over the number of river and stream crossings proposed by Gateway and the impacts on fish habitat. In addition to exercising Aboriginal fishing rights, the Carrier Sekani are also actively involved in the conservation of threatened species, most notably the Nechako White Sturgeon.

Traditionally the Carrier Sekani fished for sturgeon, but because of more recent declines in stocks, they have ceased this activity. Efforts are currently underway to identify critical habitat, to engage fishers in catch monitoring and to revive selective fishing methods to prevent impacts to the Nechako White Sturgeon.

*When Alcan lets out water
there are no eddies
because water is too high.
If a spill occurs, Finmoore
will be impacted because
salmon come up Nechako
and Stuart runs into
Nechako.*

-Dickson Alexis, Saik'uz
First Nation

With respect to salmon, the Carrier Sekani have relied on all salmon species as a mainstay of their historical and contemporary diet. As indicated in Section Four, all of the rivers that would be crossed by the pipeline have salmon stocks utilized by the Carrier Sekani. The Stuart River crossing is a major concern for the Carrier Sekani, as the Stuart River salmon supports numerous communities, including those not directly adjacent to the river. For example, one family from Nak'azdli is able to provide fish for approximately 45 families with their annual catch from the Stuart River.



Carrier Sekani Tribal Council fisheries staff weighing and tagging a white sturgeon. Carrier Sekani First Nations have been actively involved in the conservation of the white sturgeon, whose habitat would be directly impacted by the Gateway Pipeline. Photo Courtesy of CSTC Fisheries.

In addition to potential spills on the river and stream crossings, the construction of the pipeline would threaten spawning grounds of numerous species, and increases in turbidity and water temperature, and industrial waste would also impact fish habitat.

Another significant concern of the Carrier Sekani is the opening up of largely undeveloped areas to increased access by recreational hunters and fishers. The proposed right-of-way and access roads would allow recreational vehicles easier access to otherwise inaccessible areas. This could result in increased sport fishing.

While the Carrier Sekani do have self-imposed conservation efforts for threatened fish species including the Nechako White Sturgeon, there is concern that these efforts will be seriously compromised by the Gateway pipeline.

6.7 IMPACTS ON WILDLIFE AND WILDLIFE HABITAT

As noted throughout this document, the potential impacts of the Gateway pipeline must be considered within the context of the mountain pine beetle epidemic and the significant increase in cleared forest areas. The right-of way will create an opening of 4.5 ha for every one kilometer of the pipeline. Even with the re-vegetation of the temporary workspace, 3.0 ha per kilometre will remain as a permanent early-seral stage forest without trees greater than about one metre in height.

Anywhere that it may cross either the Necoslie, Stuart, Nechako, Fraser or Salmon Rivers or any tributaries, any place where water has an access to Stuart River or any other Fraser River tributaries will affect our salmon. It's going to affect three runs of sockeye and spring salmon.
-Donald Prince, Nak'azdli First Nation

There could be also even more serious impacts on species dependent on old growth forests, including furbearers lynx, marten, and fisher. While the company has indicated their effort to avoid wetlands and riparian areas in route selection, these areas will be impacted due to the large number of stream and river crossings proposed. Wetlands are critical for numerous ducks and geese that are hunted by the Carrier Sekani, and mammals such as moose, beaver and muskrat that are hunted for food and cultural goods. This clearing will significantly impact already vulnerable habitat for species including mountain caribou, mountain goat, grizzly bear, and deer. The Carrier Sekani have constitutionally protected Aboriginal rights to hunt for food and ceremonial purposes. The exercise of these rights

depends on the health of the various species, as well as their habitat.

We have territory in Burns Lake, Maxan, Noralee, Owen Lake. We've been trapping there for over a hundred years. Now there are people all over there trapping moose, beaver, everything. They are putting roads through and we don't want that either. There is danger for everything if they put in a pipeline. We are getting more and more [development] every year.

-Joseph Tom, Wet'suwet'en First Nation

Well that corridor will open up people will go in and start poaching.

-Bernadette McQuarry, Nadleh Whut'en First Nation.

My oldest son shot his first moose down there... just 300 yards north of the proposed pipeline is going. My second oldest son got his 10-12 kilometres downstream. My youngest son and nephew skinned their first moose right at the area of the proposed pipeline.

-Vincent Prince, Nak'azdli First Nation.

Down the Stuart River it's going across the 6-mile meadow, which is 7-8 miles down the river. I've been going down the river my entire life and it's still our hunting area. Everything that we live on -salmon, trout, spring salmon, moose, deer, elk, bear - is down there. We probably shoot 25 moose down there every year and we give out to the community. It's pretty important to us as individuals and the native people that is maintained the way it is.

-Donald Prince, Nak'azdli First Nation.

Further down than 9 mile that's where our line is, right down Dog Creek. I've been using it raising my 12 children on that trapline...Each family member needs 2-3 moose each year. We rely on that area. Our trapline has also been impacted by Guide Outfitters, conflicts over cabins and access...How much they suffer us them people. Now this last resort they said there going to pass that line (pipeline).

-Betsy Leon, Nak'azdli First Nation



Photograph of a Female White Tail Deer using a mineral lick located directly on the path of the proposed Enbridge Pipeline on the eastern shoreline of the Stuart River. Photo courtesy of Gottfried Esch-2005.



Beaver and bear meat, and salmon from the Stuart River area are preserved for winter food supplies. Photo Courtesy of Vincent Prince.

6.8 FRAGMENTATION OF TERRITORIES AND IMPACTS ON ABORIGINAL TITLE LANDS

The pipeline right-of-way would have a direct impact both on the uses of the land and land values. Such impacts will occur within the right-of-way itself, and over adjacent lands.

The right-of-way for this pipeline will cover a 30m. section extending over approximately 350 kilometers of Carrier Sekani territory. The trees will be cut, and no other development would be allowed on the right-of-way. For the right of way alone, this would constitute an immediate, direct taking of approximately 1000 ha (2500 acres) of Crown land without compensation to the Aboriginal titleholders. The workspace requirement directly affects another 500 ha. (1200 acres) of land.



PNG Pipeline just north of Maxan Lake. The traditional territories of the Wet'suwet'en First Nation would be further fragmented by the proposed Gateway pipeline. Photo courtesy of Carla Lewis, 2006.

Perhaps more significant is the indirect impact that a permanent right-of-way through the heart of Carrier Sekani Tribal Council lands will have on future decisions and land uses. In real estate terms, a right-of-way through a land parcel will often reduce the value of the whole parcel if it interferes with potential development options or land use choices. This loss of value can often exceed by many times the actual value of the lands within the right-of-way.

The Carrier Sekani has not yet negotiated a Treaty with the Crown, although the parties

are at Stage 4 of the Treaty process. The lands selection process for Treaty settlement lands has not occurred. Under the existing Treaty process, any lands to be offered in Treaty will be subject to existing rights-of-way, or will eliminate or restrict the availability of lands. It is likely that treaty settlement would require quite large land parcels as part of discussions. Accordingly, this substantial new right-of-way through Carrier Sekani lands has strong potential to harm Carrier Sekani interests by reducing the lands available for Treaty settlement, or by reducing the value of those lands if selected. If the impacts of land selection were recognized to occur within even one km. of the right of way, the impacts of this pipeline will be felt over 70,000 ha of CSTC lands. Also under current Treaty policy, it is important to note that the Crown will not recognize claims for compensation for past infringement.

It is very difficult to quantify the losses represented by this right-of-way until the land selection process is complete, even if such loss could be valued in dollars. To the extent that the Carrier Sekani Nations will be seeking Treaty settlement lands for cultural and traditional purposes, the rights-of-way will represent a permanent infringement, and it will be impossible to quantify those losses in monetary terms.

6.9 IMPACTS OF ACCIDENTS AND MALFUNCTIONS

One of the major concerns of the Carrier Sekani is the potential for pipeline ruptures and spills into waterways. The Carrier Sekani are aware that there is no guarantee that there will not be a spill or rupture along the pipeline. The experiences of other First Nations affected by pipeline and oil and gas development have been drawn on to understand the full spectrum of impacts on the environment, fish and wildlife, and the health of the people.

It has been established that spills and ruptures would have adverse affects on water quality, terrestrial and aquatic organisms, fish, wildlife, and human health. Contamination would not be limited to the direct spill area, but would be passed on through the food chain and the watersheds. Any spill in the Carrier Sekani territories would have some impact on Aboriginal rights.

In addition to the impact that a spill would have on the ability of the Carrier Sekani to exercise their Aboriginal rights, the environmental degradation would also compromise the identity of the Carrier Sekani as stewards and protectors of the land. This passage is based on the teachings of Bernadette Rosetti and other Elders of Nak'azdli:

Originally the Beaver Clan members were stewards of the Stuart River. Their responsibility was to care for the river and anything affecting its health. It was their responsibility to ensure that there were resources for their generation and the many generations to follow. When traplines were introduced to the Nak'azdli territory, Chief Louie Billy and Leon Cho Prince were allocated traplines along the Stuart River. They considered themselves as the caretakers of the entire river. Leon Cho was especially mindful of his duties: sometimes people said "That Leon Cho thinks he owns the river". As such there are still Nak'azdli members who take the stewardship of the river seriously. Should a disaster occur, their reputation and identity as good stewards of the land would be diminished. This responsibility is something that is ingrained in the minds and hearts of the Nak'azdli people.⁸¹

⁸¹ As told by Marlene Erickson, Nak'azdli First Nation, 2006.

Statements on the Potential of Pipeline Ruptures and Spills

Just south of Marie Lake, that's where the pipeline is, right on the ridge. If there is a breakage on there, it's all going to flow down into Marie...That's going to impact the whole water system.

-Carl Leon, Nak'azdli First Nation

The shining water that flows in the river is not just water, but the blood of our ancestors. That is why it is so sacred to us, and year after year as long as it is threatened we will return to fight for its life.

-Chief Colleen Erickson, Saik'uz First Nation, quoting Mary John, Saik'uz First Nation.

It's not so much about exactly where that pipeline is going across. If something happens there (leak)...it affects the whole river. Not only down below, but up above because everything you have is coming up that river comes up here. Right around that area they can stick it anywhere on that river, you know all the way down if they put that pipeline anywhere and if it spilled or something happened, the effect would still be the same. It's because everything we have comes up that river. All the fish, moose, bear, elk and everything will all be affected.

It's our culture right there. If you have some intrusion in there its taking away if something happens there your taking our history, way of life, culture and traditions is going to go floating down that river with the oil. We can't just stop and say I guess well try a different way of life now. We've been doing this for centuries.

-Donald Prince, Nak'azdli First Nation.

As well as potential impacts to the cultural identity of the Carrier Sekani, significant environmental impacts, specifically the cumulative impacts experienced by the Carrier Sekani, limit the ability of Elders to pass along valuable traditional knowledge to younger generations. As Nak'azdli Elder Carl Leon has said, "there will be nothing to teach the young people if the land is destroyed. What is there to teach them? The land is very important to us. There's a lot of hard work just for nothing." For the Carrier Sekani, the land is the classroom where knowledge is passed from one generation to the next, and each year the ability to pass knowledge is limited by further industrial development.

It is not only the Elders who have concerns over the pipeline project. This section concludes with the statements of the children of Nakal Bun Elementary School in Nak'azdli. These three letters are examples drawn from an entire class of approximately 20 students.

6.10 Our Children Understand the Impacts of the Proposed Gateway Pipeline



Box 1390
10 Lakeshore Drive
Fort St. James, BC
V0J 1P0
Telephone (250) 996-8441
Fax (250) 996-2229

January 31, 2006

Name: Martin Samer, 7

P. O. Box 1390

Fort St. James, B.C. V0J 1P0

To Whom It May Concern:

I, Martin Sam oppose the Enbridge Gateway Pipeline Project from
Edmonton, Alberta to Kitimat, B.C.

The reasons why I oppose the pipeline are:

I do not want the pipeline to go through our "Keyoh"
because it will wreck our children's future of trapping
hunting and it will kill our plants and trees. It will
wreck my future to trap, hunt, berry picking. Some
trees ^{are} good for example poplar bark is scraped every
morning before breakfast and if any children have worms, they
take about two spoonfuls to kill the worms then we have no more worms.

Martin Sam
Student's name



Box 1390
10 Lakeshore Drive
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V0J 1P0
Telephone (250) 996-8441
Fax (250) 996-2229

January 31, 2006

Name: TIFFANY ERICKSON

LUSILYOO (FROG) CLAN

P. O. Box 1390 Gn. 6

Fort St. James, B.C. V0J 1P0

To Whom It May Concern:

I, TIFFANY oppose the Enbridge Gateway Pipeline Project from
Edmonton, Alberta to Kitimat, B.C.

The reasons why I oppose the pipeline are:

You are wrecking the animals homes, Plants
and our Nation's medicine, Please don't
Come in and wreck all the stuff that
we need like the animals, Think of the
stuff that your wrecking fish, plants, animals
and your poisoning our water, Please
find it in your hearts. Please Don't

TIFFANY ERICKSON wreck our Nation
Student's name



Box 1390
10 Lakeshore Drive
Fort St. James, BC
V0J 1P0
Telephone (250) 996-844
Fax (250) 996-2229

January 31, 2006

Name: Dominic Prince, Gr. 7
P. O. Box 1390

Lusilyoo CLAN
(FROG)

Fort St. James, B.C. V0J 1P0

To Whom It May Concern:

I, Dominic Prince oppose the Enbridge Gateway Pipeline Project from
Edmonton, Alberta to Kitimat, B.C.

The reasons why I oppose the pipeline are:

The pipeline will ruin our water, get
rid of our berry's, kill our trees, chase our
animals away, fish will stop coming to our
water and we need the plants for indian
medicine we need our keyoh for our
future. We need Ts'itel for canoes, we need
Ut'ankal for home made jam.

Dominic Prince
Student's name

SECTION 7.0 CONCLUSION

The purpose of this study was to provide a preliminary assessment of potential impacts associated with the proposed Gateway pipeline through independent research and by giving voice to the concerns of the Carrier Sekani membership. An overview of the Carrier Sekani Aboriginal title and rights that would be infringed was provided as the basis of the impact assessment. Concurrently, the existing cumulative impacts within Carrier Sekani territories were established to contextualize the proposed development.

The underlying factor of the existing cumulative impacts is the lack of signed treaties between the Carrier Sekani and the two levels of government. While treaty negotiations have continued for more than ten years, government has been unable to provide interim protection for any part of the Carrier Sekani territories pending final agreement. The fragmentation of the territories by a linear right-of-way for the Gateway pipeline would further decrease land available for treaty settlement. Moreover, with the plain intention of the provincial government to develop oil and gas in the Bowser and Nechako Basins, this pipeline may lead to further development that the Carrier Sekani are yet to be prepared for, nor have been involved in the planning of this development.

Case studies used in this AIUS of other First Nations' experiences with pipeline and oil and gas development have shown that the benefits to First Nations are often overstated and that impacts on traditional livelihood are inescapable and in many cases irreversible. The same studies indicate that once a pipeline is in place, it serves as a key incentive for further development of oil and gas resources regionally. First Nations lack the capacity to be meaningfully involved in land use decision making when the pace of development is accelerated, which it often is in oil and gas development.

In learning from the experiences of other First Nations, and independently researching the potential impacts of the pipeline in question, this study of the Carrier Sekani Tribal Council concludes the following:

1. The Carrier Sekani have unextinguished aboriginal title and rights which will be significantly infringed along a substantial portion of the proposed pipeline right of way.
2. The direct impacts of the proposed Enbridge Gateway pipeline on the Carrier Sekani are potentially numerous and serious, and of a magnitude that will likely be unacceptable to Carrier Sekani members and communities.
3. Regulatory authorities should not proceed further with this project unless free, prior and informed consent is received from the CSTC and its member communities.
4. There will be cumulative and indirect impacts additional to these direct impacts, which will combine with existing developments, mountain pine beetle impacts, existing loss of fish stocks and future development in the Bowser and Nechako Basins, which cumulatively are also likely to be unacceptable. These cumulative and indirect impacts must be studied, considered, and properly accounted for in any regulatory decisions.

5. The benefits from the pipeline to the Carrier Sekani will be very limited as presently proposed, and will not be sufficient to outweigh the impacts of the pipeline on the Carrier Sekani, and the infringements to their aboriginal title and rights.
6. Considering the magnitude of the impacts and the limited benefits, the Chiefs of the Carrier Sekani should determine with their communities whether approval of the CSTC should be refused for this pipeline, including any further work on CSTC lands.
7. The existing studies done to date have not adequately considered CSTC interests.
8. CSTC consent to any further exploratory or regulatory work should be conditional upon:
 - a) CSTC completion of a Phase II AIUS once Gateway has fully shared its baseline data and studies;
 - b) Further assessment of the archeological and cultural resources along the proposed pipeline corridor, to be conducted by the CSTC with adequate funding;
 - c) Completion of a First Nations-led review process with the other First Nations along the corridor;
 - d) Meaningful involvement in the decision-making processes of regulatory bodies.

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Interviews with CSTC Elders, *Keyoh* and Trapline Holders (2006)
Conducted by Warner Naziel (B.A. UNBC), and Carla Lewis (B.A. UNBC)

Dick A'huille, Nak'azdli First Nation
Moise and Mary Antwoine, Saik'uz First Nation
George George, Sr. Nadleh Whut'en First Nation
Rita George, Wet'suwet'en First Nation
Patrick Isaac, Wet'suwet'en First Nation
Peter John, Burns Lake Band
Alma Larson, Wet'suwet'en First Nation
Betsy and Carl Leon, Nak'azdli First Nation
Bernadette McQuarry, Nadleh Whut'en First Nation
Aileen Prince, Nak'azdli First Nation
Donald Prince, Nak'azdli First Nation
Guy Prince, Nak'azdli First Nation
Vince Prince, Nak'azdli First Nation
Kenny Sam, Burns Lake Band
Lillian Sam, Nak'azdli First Nation
Ruth Tibbetts, Burns Lake Band
Ryan Tibbetts, Burns Lake Band
Joseph Tom, Wet'suwet'en First Nation