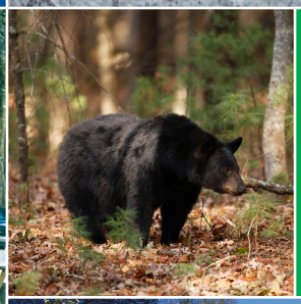
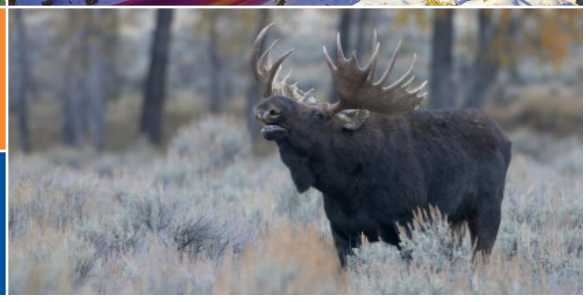
Northwest Mainline
Komie North Extension

Project Description

April 2011





Submitted to:
The Secretary
National Energy Board
444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

TransCanada
In business to deliver

TransCanada
In business to deliver

450-1st Street S.W.
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April 8, 2011

National Energy Board
444 Seventh Avenue S.W.
Calgary, Alberta
T2P 0X8

Filed Electronically

Attention: Ms. Anne-Marie Erickson, Secretary of the Board

Dear Madam:

Re: NOVA Gas Transmission Ltd. (NGTL)
Project Description – Proposed Northwest Mainline
Komie North Extension Project (Project)

NGTL, a wholly owned subsidiary of TransCanada PipeLines Limited (**TransCanada**), proposes to construct and operate new facilities in northeast British Columbia (**BC**) and northwest Alberta. These new facilities will be required to receive and transport natural gas from the Horn River area of BC to the NOVA Inventory Transfer market on the Alberta System. The project description (**PD**) for the proposed Project is provided under cover of this letter.

The Project consists of the following major components:

- a proposed extension of the Horn River Mainline (Komie North Section) in BC of approximately 100 km of up to 914 mm (NPS 36) outside diameter (OD) pipe and the related required facilities;

- the Horn River Mainline Loop (Townsoitoi Creek Section) in BC is a proposed pipeline loop of approximately 54 km of 1067 mm (NPS 42) pipe and related required facilities;

- Northwest Mainline Loop (Pyramid Section) in Alberta is a proposed pipeline loop of approximately 30 km of 1219 mm (NPS 48) pipe and related required facilities; and

- Chinchaga Lateral Loop No. 3 in Alberta is a proposed pipeline loop of approximately 33 km of 1219 mm (NPS 48) pipe and related required facilities.

Approximately 166 km of the route for the Project is located alongside or contiguous to existing pipeline rights-of-way. A remaining portion of the Project, approximately 51 km in length, will be installed in non-contiguous rights-of-way. The proposed in-service date is April 1, 2014.

NGTL plans to file an application for a Certificate of Public Convenience and Necessity to construct and operate the Project, pursuant to section 52 of the *National Energy Board Act* (**NEB Act**), in the third quarter of 2011. In the interim, NGTL plans to proceed with field studies, environmental and socio-economic assessments, engineering design, stakeholder consultation, Aboriginal engagement and other activities needed to support the application.

The PD is consistent with the guidance in the Major Project Management Office (**MPMO**) *Guide to Preparing a Project Description for a Major Resource Project (December 2008).* It is intended to:

- facilitate an efficient regulatory review of the project by the NEB;
- provide sufficient information to enable federal departments to determine whether an environmental assessment under the *Canadian Environmental Assessment Act* (**CEAA**) is required, and if so, what their respective roles and responsibilities in that assessment will be;
- facilitate determination of the scope of the project, the scope of assessment, and the type of assessment required pursuant to CEAA and NEB Act; and
- provide the Crown with sufficient information to commence consultation with Aboriginal communities who might potentially be affected by the Project.

Accordingly, NGTL, in addition to providing the PD for consideration by the NEB, also requests that the MPMO initiate the environmental assessment coordination process under the provisions of CEAA and that the Crown commence any necessary consultation with Aboriginal communities as soon as possible.

Yours truly,
NOVA Gas Transmission Ltd.

Original signed by

Kristine L. Delkus
Deputy General Counsel
Pipelines and Regulatory Affairs

Enclosures

cc. Distribution List
Director General, MPMO Operations

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ACIMS	Alberta Conservation Information Management System
ADKFN	Acho Dene Koe First Nation
AENV	Alberta Environment
ASRD	Alberta Sustainable Resource Development
ATPR	Alberta Tourism, Parks and Recreation
AWWID	Alberta Water Well Information Database
BC	British Columbia
BC CDC	British Columbia Conservation Data Centre
BC MOF	British Columbia Ministry of Forests
BC MOE	British Columbia Ministry of Environment
BC OGC	British Columbia Oil and Gas Commission
BEC	Biogeoclimatic Ecosystem Classification

BFN	Beaver First Nation
BWBSmw2	Boreal White and Black Spruce Moist Water 2
CEAA	Canadian Environmental Assessment Act
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPCN	Certificate of Public Convenience and Necessity
DFN	Duncan's First Nation
DFO	Fisheries and Oceans Canada
DRFN	Doig River First Nation
DTFN	Dena Tha' First Nation
FCR	Federal Authorities of Environmental Assessment Procedures and Requirements
FISS	Fisheries Information Summary System
FLMS	Fort Liard Métis Society
FNFN	Fort Nelson First Nation
FNMS	Fort Nelson Métis Society
FWMIS	Fish and Wildlife Management Information System
GoA	Government of Alberta
HLFN	Horse Lake First Nation
ILMB	Integrated Land Management Bureau
IPA	Integrated Public Awareness
LAT	Landscape Analysis Tool
LRMP	Land and Resource Management Plan
MNA-Region 6	Métis Nation of Alberta – Region 6
NCD	Non-Classified Drainages
NEB	National Energy Board
NEB Act	National Energy Board Act
NGTL	NOVA Gas Transmission Ltd.
NPS	Nominal Pipe Size
OCC	Operations Control Centre
PPMS	Paddle Prairie Métis Settlement
PRFN	Prophet River First Nation
RAP	Restricted Activity Period
RMZ	Resource Management Zone
ROW	Right-of-Way
SARA	Species at Risk Act
SARPR	Species at Risk Public Registry
SCADA	Supervisory Control and Data Acquisition
TEK	Traditional Ecological Knowledge
TLU	Traditional Land Use
TransCanada	TransCanada PipeLines Limited
WRBC	British Columbia Water Resources Atlas

1.0 INTRODUCTION

1.1 Name and Nature of Project

NOVA Gas Transmission Ltd. (**NGTL**), a wholly owned subsidiary of TransCanada PipeLines Limited (**TransCanada**), proposes to construct and operate new facilities on the Alberta System to receive and transport natural gas supply from the Horn River area of British Columbia (**BC**). These facilities are:

- **Horn River Mainline (Komie North Section) – referred to as Komie North Section**

  An extension to the Horn River Mainline of approximately 100 km of up to 914 mm (NPS 36) outside diameter pipe and related facilities extending from the Horn River Mainline (Cabin Section) at d-64-J/94-P-4 in BC to the proposed Fortune Creek Meter Station located at 55-A/94-O-15 in BC;

- **Horn River Mainline Loop (Townsoitoi Creek Section) – referred to as Townsoitoi Creek Section**

  Pipeline loop of approximately 54 km of 1067 mm (NPS 42) pipe and related facilities between interconnections with the Horn River Mainline (Ekwan Section) located at 97-F/94-I-10 in BC and NE 15-111-12-W6M in Alberta;

- **Northwest Mainline Loop (Pyramid Section) – referred to as Pyramid Section**

  Pipeline loop of approximately 30 km of 1219 mm (NPS 48) pipe and related facilities between interconnections with the Northwest Mainline located at NW 06-104-12 W6M in Alberta and NW 01-101-13 W6M in Alberta; and

- **Chinchaga Lateral Loop No. 3 – referred to as Chinchaga Section**

  Pipeline loop of approximately 33 km of 1219 mm (NPS 48) pipe and related facilities between interconnections adjacent to the Chinchaga Meter Station located at NE 13-96-5 W6M and Meikle River Compressor Station located at NE 26-94-2 W6M.

Collectively, these facilities are referred to as the "Project," or the "Northwest Mainline Komie North Extension." The proposed facilities are shown in Figure 1-1.

The proposed construction of the Komie North Section of the Horn River Mainline will allow additional supply from the Horn River Area to connect directly to the NOVA Inventory Transfer market.

At this early stage in project planning, it is estimated that approximately 166 km of the proposed route for the Project is located alongside or contiguous to existing

pipeline rights-of-way (**ROW**). The remaining length of approximately 51 km is projected to be installed in non-contiguous ROW.

Temporary infrastructure such as access roads, stockpile sites, contractor yards and construction camps, will be required during construction. Some new access roads may also be needed for pipeline operations. New electrical power lines and facilities may be required to operate metering facilities and are expected to be constructed, owned and operated by third-party power providers.

1.2 Federal Work and Undertaking

The requirement for a Certificate of Public Convenience and Necessity (**CPCN**), as well as additional approvals under federal legislation other than the *National Energy Board Act* (**NEB Act**), will trigger the provisions of the *Canadian Environmental Assessment Act* (**CEAA**)[1]. Consequently, the National Energy Board (**NEB**) and other federal agencies with decision-making authority in relation to the Project, as the Responsible Authorities, will be required to complete an assessment under the CEAA. The NEB also has an independent mandate to consider and take into account potential socio-economic and environmental impacts of the Project under the provisions of the NEB Act. The dual responsibilities of the NEB under the CEAA and the NEB Act are expected to be satisfied through a coordinated process, based on a single environmental assessment (see Section 2, Purpose and Scope).

1.3 Project Proponent

NGTL, a wholly owned subsidiary of TransCanada, will construct and own the Project.

1.3.1 TransCanada

TransCanada is a leader in the responsible development and reliable operation of North American energy infrastructure, including natural gas pipelines, power generation, and gas storage facilities. Having owned and operated Canada's largest natural gas pipeline system for more than 50 years, TransCanada has an established track record for operational excellence and has developed and maintained positive relationships with landowners across its entire North American pipeline system.

TransCanada's network of wholly owned pipelines extends more than 60,000 km in Canada, the United States, and Mexico, tapping into virtually all of the major gas supply basins in North America. TransCanada also holds varying ownership interests in other North American pipelines and pipeline projects.

[1] S.C. 1992, c.37

1.3.2 The Alberta System

The Alberta System is a natural gas pipeline system comprised of approximately 24,000 km of pipelines within Alberta and Northeast BC. It transports natural gas to markets in Alberta, elsewhere in Canada, and in the United States. It connects with the TransCanada Mainline at Empress, Alberta, and with the TransCanada Foothills System at Caroline, Crowsnest and McNeill, Alberta.

1.3.3 Proponent Contact Information

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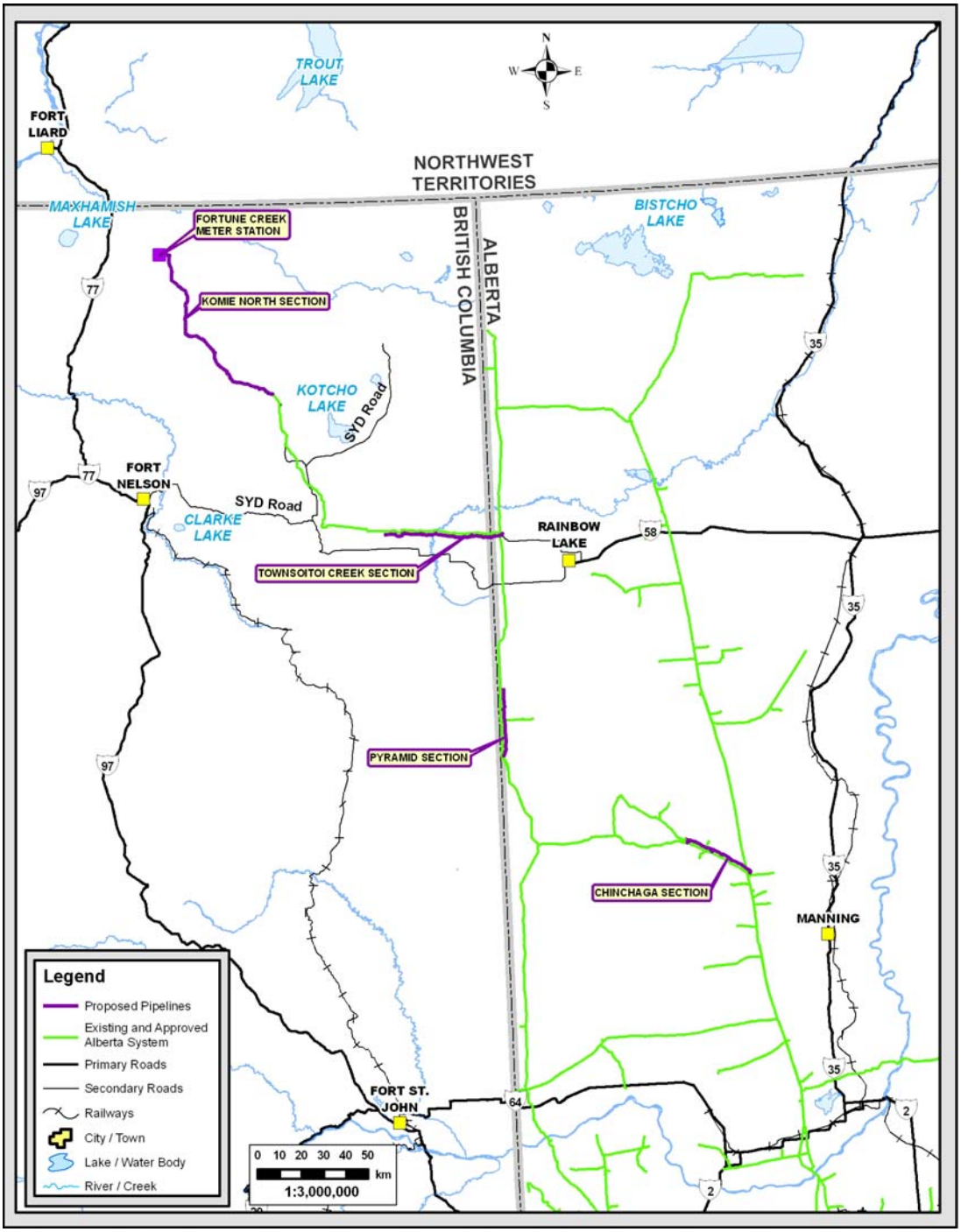
Figure 1-1: Overview Map of the Project



2.0 PURPOSE AND SCOPE

This document provides a description of the Project consistent with the guidance contained in the Major Projects Management Office *Guide to Preparing a Project Description for a Major Resource Project* (December 2008) and is consistent with the Canadian Environmental Assessment Agency's Operational Statement EPO/5-2000 and the Reference Guide on Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements (**FCR**). It is intended to:

- facilitate an efficient regulatory review of the Project;
- provide sufficient information to enable federal departments to determine whether an environmental assessment under the CEAA is required, and if so, what their respective roles and responsibilities in that assessment will be;
- facilitate determination of the scope of the Project, the scope of assessment, and the type of assessment required pursuant to the CEAA and the NEB Act; and
- provide the Crown with sufficient information to commence consultation with Aboriginal communities who might potentially be affected by the Project.

2.1 Environmental Assessment

2.1.1 Type of Assessment

As further described in Section 3, approximately 166 km of the 217 km proposed route for the Project is alongside and contiguous to existing ROW, as defined in the *Comprehensive Study List Regulations*[2] under the CEAA. The non-contiguous sections of the Project account for approximately 51 km. Accordingly, as the Project is not of a type listed by either the *Exclusion List*[3], or the *Comprehensive Study List Regulations*, environmental assessment of the Project should be conducted by way of a screening.

2.1.2 Scope of Assessment

The following physical works and activities should be included within the scope of the Project for the purpose of environmental assessment pursuant to the requirements of the CEAA and the NEB Act:

- construction and operation of approximately 217 km of pipeline, of which 149 km are located in northeastern BC, and 68 km are located in northwestern Alberta, including:
  - pipeline valves;
  - valves and blind flanges to accommodate the potential installation of launcher and receiver facilities for in-line inspection;

[2] SOR/94-638.
[3] SOR/2007-108.

- cathodic protection;
- metering;
- control systems; and
- other related works.

- construction-related temporary infrastructure such as:
  - access;
  - pipe storage sites;
  - contractor office and yards; and
  - construction accommodation camps.

Construction and operation of new power facilities may be required to supply or augment existing power to the proposed Fortune Creek meter station. Upstream gas production, processing and gathering pipeline facilities will also be required. These facilities are distinct physical works that will be constructed and operated by other parties subject to a provincial regulatory regime distinct from that governing the proposed construction and operation of the Project. Accordingly, such physical works should be considered only in the context of the cumulative effects assessment.

2.1.3 Other Assessment Regimes

As a federal work and undertaking subject to the regulatory jurisdiction of the NEB, the Project will not be subject to provincial environmental impact assessment processes. Nevertheless, Alberta and BC may choose to participate in the federal assessment or regulatory processes to facilitate consideration of any concerns or provide advice to the NEB.

2.2 Joint Process

The requirements of both the NEB Act and the CEAA are expected to be satisfied through a joint process. This process is based on a single environmental and socio-economic assessment, in keeping with past practice and consistent with the objective of effective and efficient project assessment.

2.3 Crown Consultation with Aboriginal Communities

NGTL and its parent, TransCanada, respect the legal and constitutional rights of Aboriginal communities, and recognize that their relationships with Aboriginal communities are separate and different from the relationships those communities have with the Crown.

To the extent that the Project requires Crown consultation with Aboriginal communities, it is important that such consultation be initiated and completed in a timely way. A key objective of this document is to enable the Crown to begin any necessary consultation as soon as possible.

3.0 PROJECT INFORMATION

3.1 Main Components and Structures

Primary components of the four pipeline sections are described below.

3.1.1 Permanent Structures – Horn River Mainline (Komie North Section)

The Komie North Section will have the following primary permanent facilities:

- approximately 100 km of up to 914 mm (NPS 36) pipeline;
- a new metering facility, the Fortune Creek Meter Station, at the producer's tie-in located at the north end of the proposed pipeline;
- mainline valve sites;
- valves to accommodate the potential installation of launcher and receiver facilities for in-line inspection;
- a cathodic protection system; and
- associated miscellaneous works such as pipeline warning signs and aerial markers.

3.1.2 Permanent Structures – Horn River Mainline Loop (Townsoitoi Creek Section)

The Townsoitoi Creek Section will have the following primary permanent facilities:

- approximately 54 km of 1067 mm (NPS 42) pipeline;
- mainline valve sites;
- a valve to accommodate the potential installation of a receiver for cleaning and in-line inspection;
- a cathodic protection system;
- crossovers and associated valving to the existing Horn River Mainline (Ekwan Section); and
- associated miscellaneous works such as pipeline warning signs and aerial markers.

3.1.3 Permanent Structures – Northwest Mainline Loop (Pyramid Section)

The Pyramid Section will have the following primary permanent facilities:

- approximately 30 km of 1219 mm (NPS 48) pipeline;
- mainline valve sites;
- a cathodic protection system; and
- associated miscellaneous works such as pipeline warning signs and aerial markers.

3.1.4 Permanent Structures – Chinchaga Lateral Loop No. 3 (Chinchaga Section)

The Chinchaga Section will have the following primary permanent facilities:

- approximately 33 km of 1219 mm (NPS 48) pipeline;
- mainline valve sites;
- a valve and blind flange to accommodate the potential installation of a receiver to accommodate cleaning and in-line inspection;
- a cathodic protection system; and
- associated miscellaneous works such as pipeline warning signs and aerial markers.

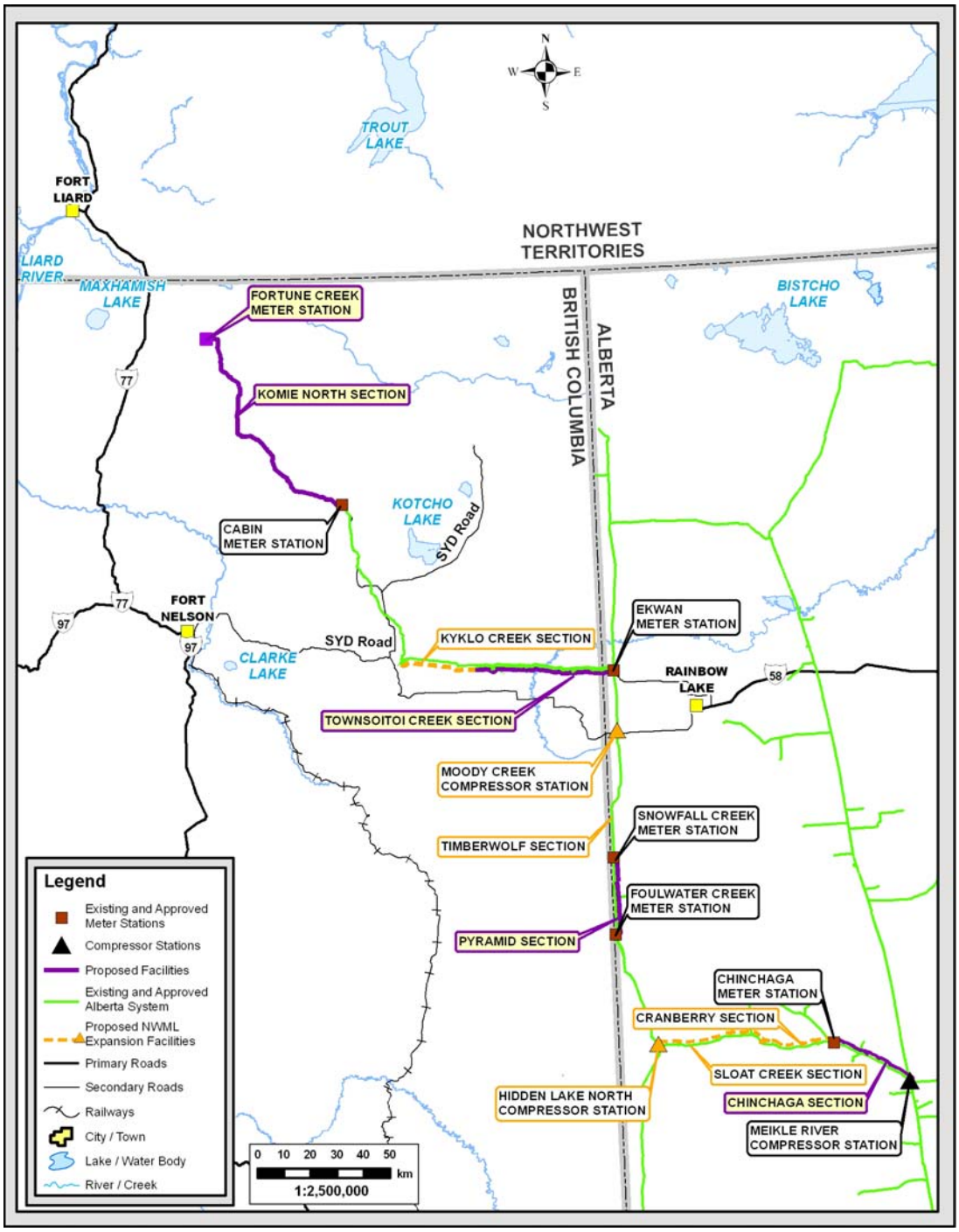
3.1.5 Location of Project Components

Location data for the main Project components are provided in Table 3-1 and map locations are shown in Figure 3-1.

Table 3-1: Location of the Main Project Components

Component	Location (KP)	Legal Location	Easting	Northing	UTM Zone
Komie North Section start point	0	55-A/94-O-15	524791	6628837	10
Komie North Section end point	100	64-J/94-P-4	576050	6565793	10
Townsoitoi Creek Section start point	0	97-F/94-I-10	626036	6504183	10
Townsoitoi Creek Section end point	54	NE-15-111-12 W6M	678243	6503880	10
Pyramid Section start point	0	NW-6-104-12 W6M	323603	6432960	11
Pyramid Section end point	30	NW-1-101-13 W6M	321849	6404001	11
Chinchaga Section start point	0	NE-13-96-5 W6M	400441	6356071	11
Chinchaga Section end point	33	NE-26-94-2 W6M	427694	6339347	11
Note: Final pipeline routing and station locations will be subject to engineering and environmental site evaluations, public consultation, land acquisition and regulatory approvals.					

Figure 3-1: Main Components of the Project



3.1.6 Common Elements

In-Line Inspection Facilities

Valves and/or blind flanges to accommodate the potential installation of launcher and receiver facilities for in-line inspection will be installed at several locations on the Project. For the Komie North Section, valves will be installed at the Fortune Creek meter station and the tie-in point on the Horn River Mainline (Cabin Section). For the Townsoitoi Creek Section, a valve will be installed at the Ekwan meter station. For the Chinchaga Section, a valve with a blind flange will be installed at the Meikle River Compressor Station.

Cathodic Protection

A cathodic protection system, including a combination of anode beds, rectifiers and associated facilities, will be installed for the pipeline and meter station.

Supervisory Control and Data Acquisition System

The pipeline system will include the installation and operation of a Supervisory Control and Data Acquisition (**SCADA**) system. The control room for the SCADA system is located in Calgary and is staffed 24 hours per day through the TransCanada Operations Control Centre (**OCC**).

3.1.7 Pipeline Route

The Project consists of four pipeline segments: Komie North Section, Townsoitoi Creek Section, Pyramid Section and Chinchaga Section, which are described in more detail below.

At this early stage in planning, the distances for each pipeline segment are approximate and, due to rounding, there may be inconsistencies between tables and totals.

Komie North Section

The Komie North Section facilities consist of approximately 100 km of up to 914 mm (NPS 36) pipeline. The route begins at Fortune Creek Meter Station situated approximately 110 km north of Fort Nelson, BC. It then proceeds in a southeasterly direction to tie-in to the approved 914 mm (NPS 36) Horn River Mainline (Cabin Section) pipeline downstream of the Encana Cabin Gas Plant, at a location approximately 75 km to the northeast of Fort Nelson.

As currently projected, about 58 km (58%) of the proposed route is contiguous with existing pipeline ROW. Approximately 42 km (42%) of the route is currently comprised of non-contiguous ROW. The non-contiguous ROW is required in areas where there are no existing facilities to parallel; and where it is necessary to accommodate pipeline

watercourse crossings, avoid areas where pipeline and plant facilities are congested, and address potential construction and environmental issues and requirements. Approximately 18 km of the 42 km of non-contiguous ROW parallels or uses existing disturbances, which reduces the amount of new cut required.

Meter Stations

The Fortune Creek meter station, located in 55-A/94-O-15, will include custody transfer metering, communication and control systems and associated piping and valves.

Mainline Valve Sites

Mainline valves will be installed at the Fortune Creek meter station and other locations, as necessary, to facilitate system operations. Spacing of the valves is typically between 30 and 35 km apart.

Townsoitoi Creek Section

The Townsoitoi Creek Section route in BC begins at a point slightly east of Kyklo Creek. From there, it proceeds in an easterly direction toward Alberta, crossing the provincial boundary at a point near Little Hay River and ending at the Ekwan Meter Station.

The total length of the pipeline route is approximately 54 km, consisting of about 4 km in Alberta and about 50 km in BC.

The majority of the Townsoitoi Creek Section parallels the existing 610 mm (NPS 24) Horn River Mainline (Ekwan Section). In the GH-2-2010 proceeding, NGTL received approval to acquire the Encana Ekwan pipeline.[4] The proposed route is contiguous with the existing pipeline ROW for about 49 km (90%) of the total proposed length. Only about 5 km (10%) of the route is currently comprised of non-contiguous ROW located entirely in BC.

The non-contiguous ROW is required to accommodate pipeline watercourse crossings, avoid sensitive terrain and environmental areas, and otherwise address potential construction issues and requirements.

Pyramid Section

The Pyramid Section consists of approximately 30 km of pipeline which starts at a point on the existing Northwest Mainline approximately 65 km south west of Rainbow Lake, Alberta, and proceeds in a southerly direction. It will tie-in to the existing 762 mm (NPS 30) Northwest Mainline.

[4] National Energy Board Reasons for Decision, NOVA Gas Transmission Ltd., Application dated 19 February 2010 for the Horn River Project, GH-2-2010, January 2011.

The proposed route parallels the existing Northwest Mainline and is contiguous with existing pipeline ROW for approximately 28 km (94%) of the total proposed length. Only 2 km (6%) of the route is currently comprised of non-contiguous ROW. The non-contiguous ROW is required to accommodate pipeline watercourse crossings, avoid sensitive terrain and environmental areas, and otherwise address potential construction issues and requirements.

Chinchaga Section

The Chinchaga Section consists of approximately 33 km of pipeline which starts at a point adjacent to the existing Chinchaga Meter Station approximately 76 km northwest of Manning, Alberta, and proceeds in an easterly direction. It is proposed to tie-in to the existing Meikle River Compressor Station.

The proposed route parallels the existing Chinchaga Lateral and is contiguous to existing pipeline ROW for approximately 31 km (94%) of the total proposed length. Only 2 km (6%) of the route is currently comprised of non-contiguous ROW.

The non-contiguous ROW is required to accommodate pipeline watercourse crossings, avoid sensitive terrain and environmental areas, and otherwise address potential construction issues and requirements.

3.1.8 Contiguous and Non-contiguous ROW

Figures 3-2 to 3-5 show the location of the contiguous and non-contiguous pipeline ROW for the Project. Table 3-2 provides the contiguous and non-contiguous lengths, based on preliminary construction chainage. The route is contiguous to pipeline ROW and a powerline.

Table 3.2: Contiguous and Non-Contiguous ROW

Contiguous / Non-Contiguous ROW
(Approximate distances in metres.)

Summary	Contiguous	Non-Contiguous
Komie North Section	58020	41455
Townsoitoi Creek Section	48812	5435
Pyramid Section	28194	1937
Chinchaga Section	30957	1941
Sub total	**165983**	**50768**
TOTAL	**216752**	

	Kp From	Kp To	Contiguous	Non-Contiguous
Komie North Section	0+000	3+463	3463	
	3+463	3+822		361
	3+822	7+493	3671	
	7+493	42+307		34813
	42+307	46+534	4228	
	46+534	46+570		36
	46+570	51+237	4667	
	51+237	51+576		339
	51+576	60+106	8530	
	60+106	60+310		205
	60+310	60+331	20	
	60+331	60+524		193
	60+524	60+534	10	
	60+534	60+943		409
	60+943	73+678	12734	
	73+678	74+001		323
	74+001	76+042	2041	
	76+042	76+917		875
	76+917	76+945	27	
	76+945	77+897		952
	77+897	78+661	764	
	78+661	79+054		394
	79+054	86+916	7862	
	86+916	87+420		503

Contiguous / Non-Contiguous ROW (Approximate distances in metres.)				
	87+420	90+618	3199	
	90+618	91+124		506
	91+124	91+347	223	
	91+347	92+184		837
	92+184	96+254	4070	
	96+254	96+963		709
	96+963	99+475	2511	
	Total		**58020**	**41455**

	Kp From	Kp To	Contiguous	Non-Contiguous
Townsoitoi Creek Section	0+000	17+862	17862	
	17+862	18+156		294
	18+156	19+402	1246	
	19+402	20+097		695
	20+097	38+475	18378	
	38+475	38+940		465
	38+940	39+179	239	
	39+179	39+784		605
	39+784	44+066	4282	
	44+066	44+199		133
	44+199	44+539	340	
	44+539	44+619		80
	44+619	44+648	29	
	44+648	44+973		325
	44+973	46+129	1156	
	46+129	48+590		2461
	48+590	48+606	16	
	48+606	48+983		377
	48+983	49+831	848	
	49+831	BC / AB Border		
	49+831	54+247	4416	
	Total		**48812**	**5435**

Contiguous / Non-Contiguous ROW
(Approximate distances in metres.)

	Kp From	Kp To	Contiguous	Non-Contiguous
Pyramid Section	0+000	0+100	100	
	0+100	0+144		44
	0+144	0+219	75	
	0+219	0+237		18
	0+237	0+277	40	
	0+277	0+467		190
	0+467	1+038	571	
	1+038	1+348		310
	1+348	1+788	440	
	1+788	2+054		266
	2+054	2+090	36	
	2+090	2+302		212
	2+302	2+321	19	
	2+321	2+636		315
	2+636	21+267	18631	
	21+267	21+849		582
	21+849	30+131	8282	
	Total		**28194**	**1937**

	Kp From	Kp To	Contiguous	Non-Contiguous
Chinchaga Section	0+000	20+583	20583	
	20+583	20+604		21
	20+604	25+048	4444	
	25+048	25+207		159
	25+207	25+480	273	
	25+480	26+183		703
	26+183	29+894	3711	
	29+894	29+931		37
	29+931	30+598	667	
	30+598	31+619		1021
	31+619	32+898	1279	
	Total		**30957**	**1941**

Figure 3-2: Contiguous and Non-contiguous ROW (Komie North Section)

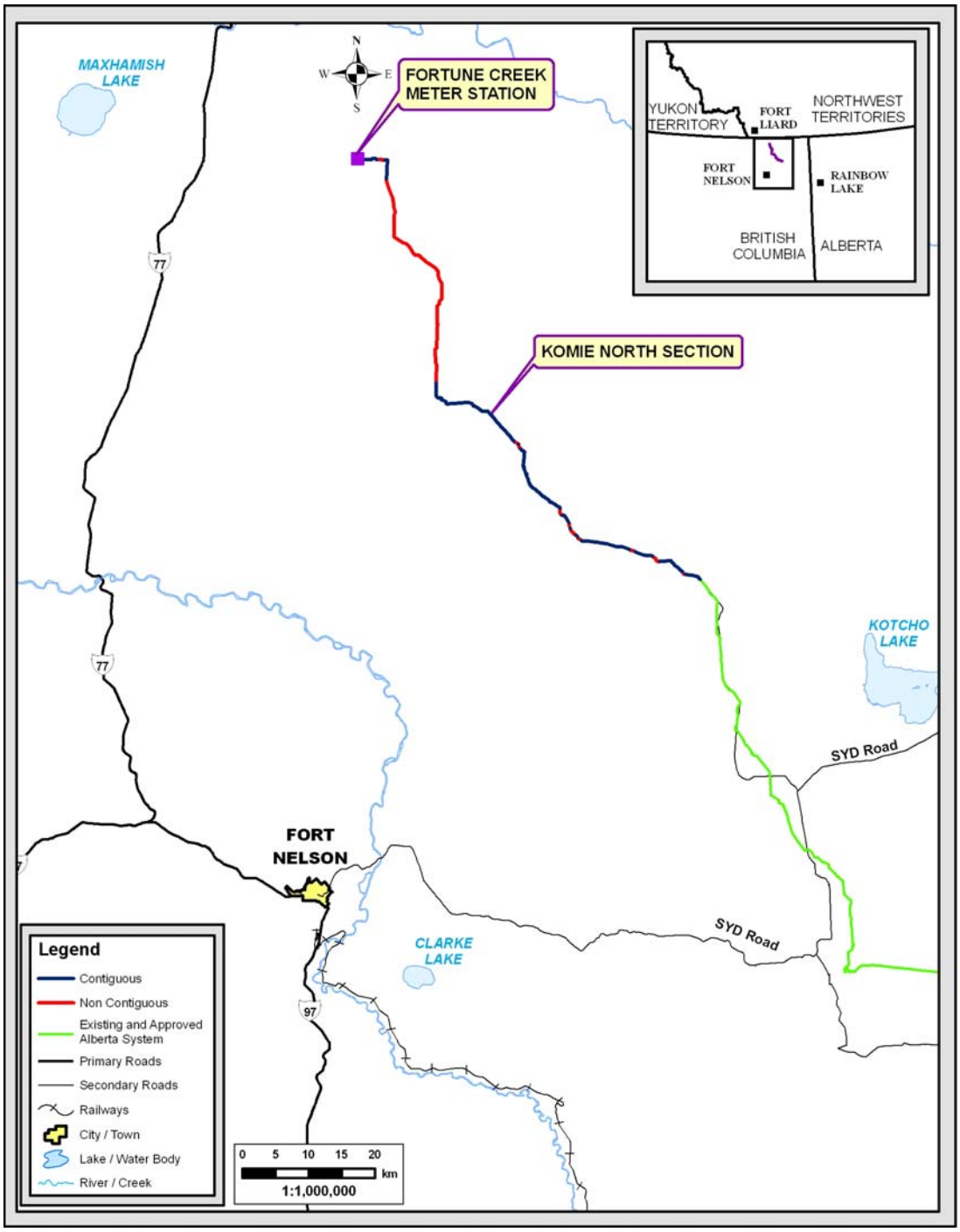


Figure 3-3: Contiguous and Non-contiguous ROW (Townsoitoi Creek Section)

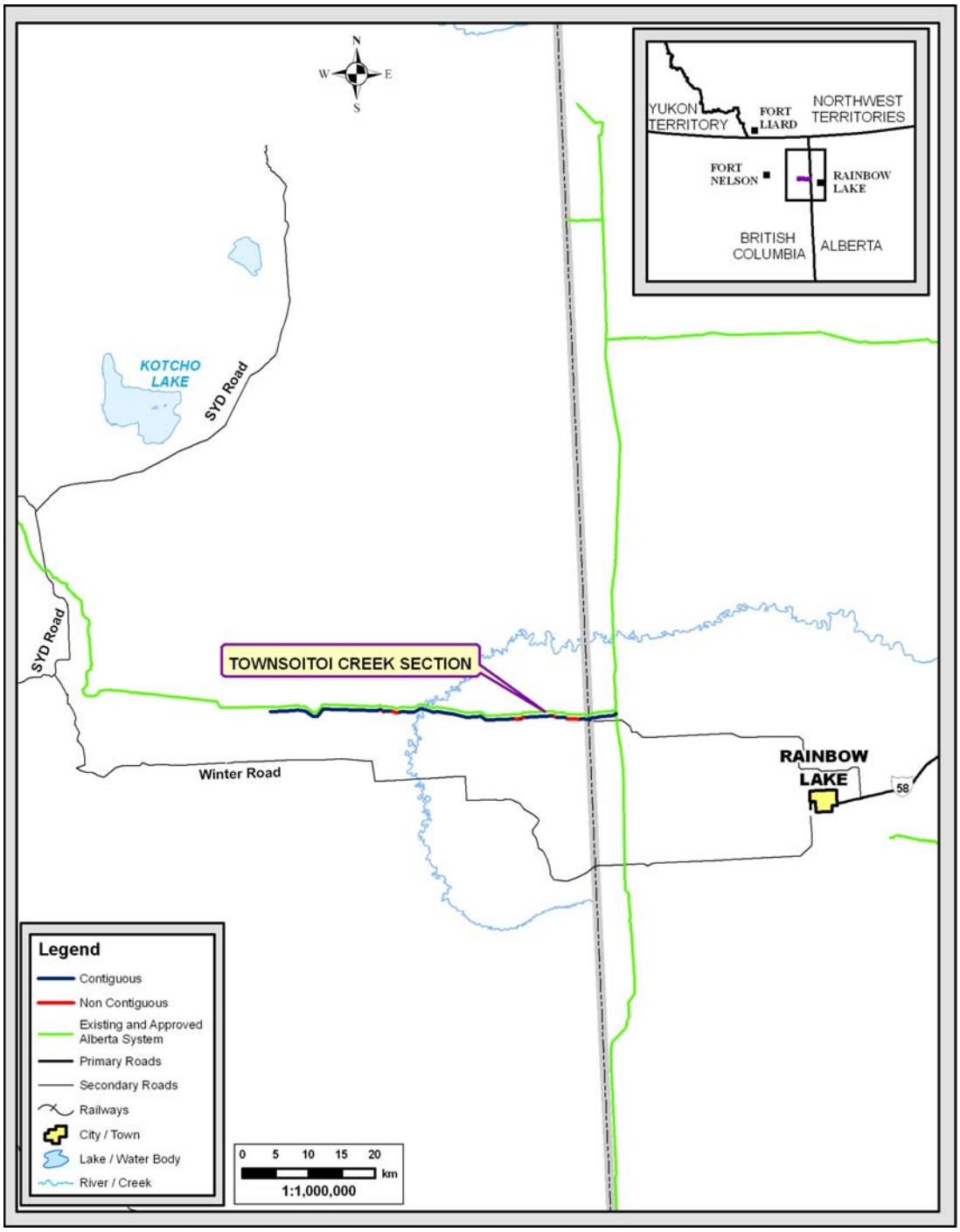


Figure 3-4: Contiguous and Non-contiguous ROW (Pyramid Section)

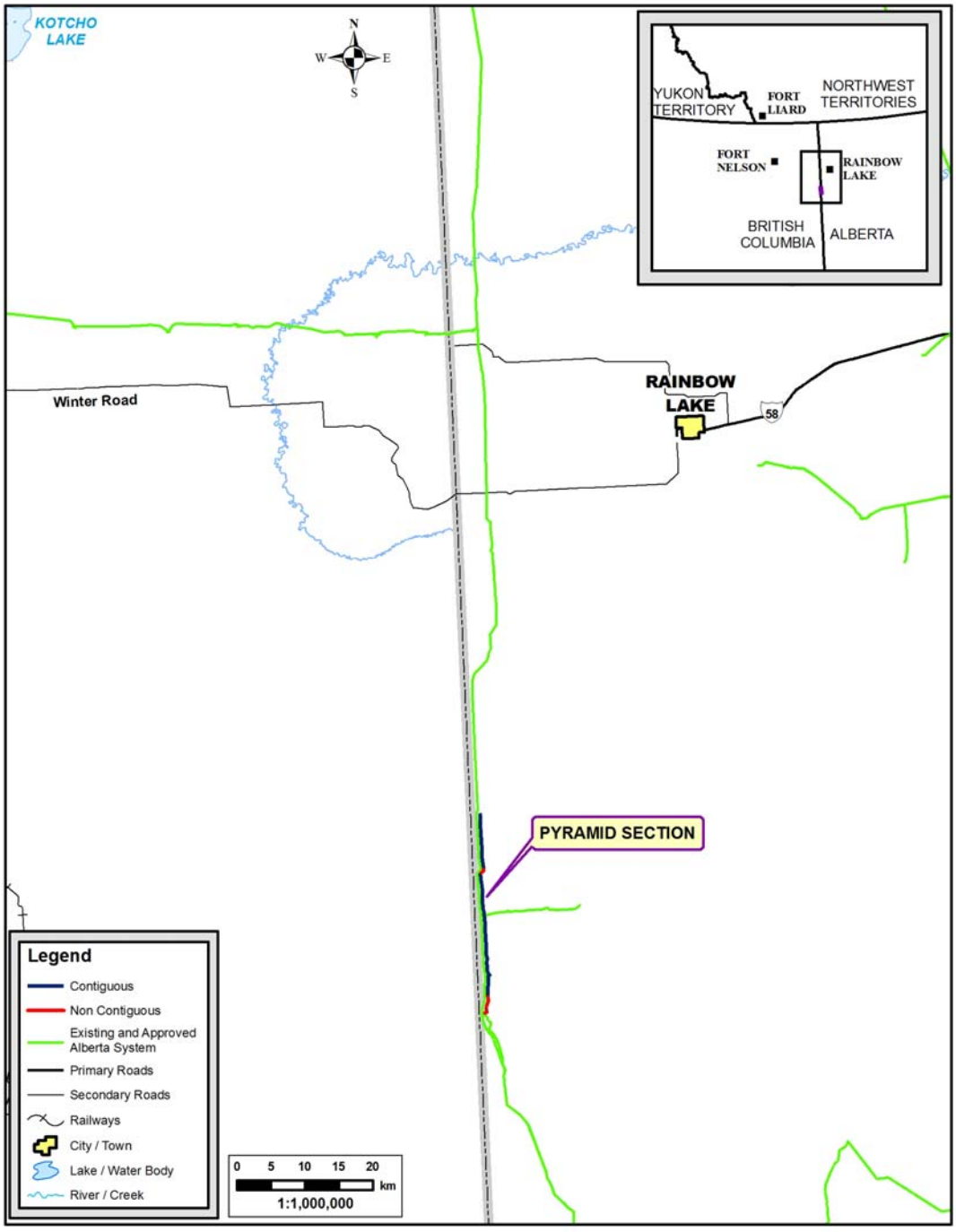
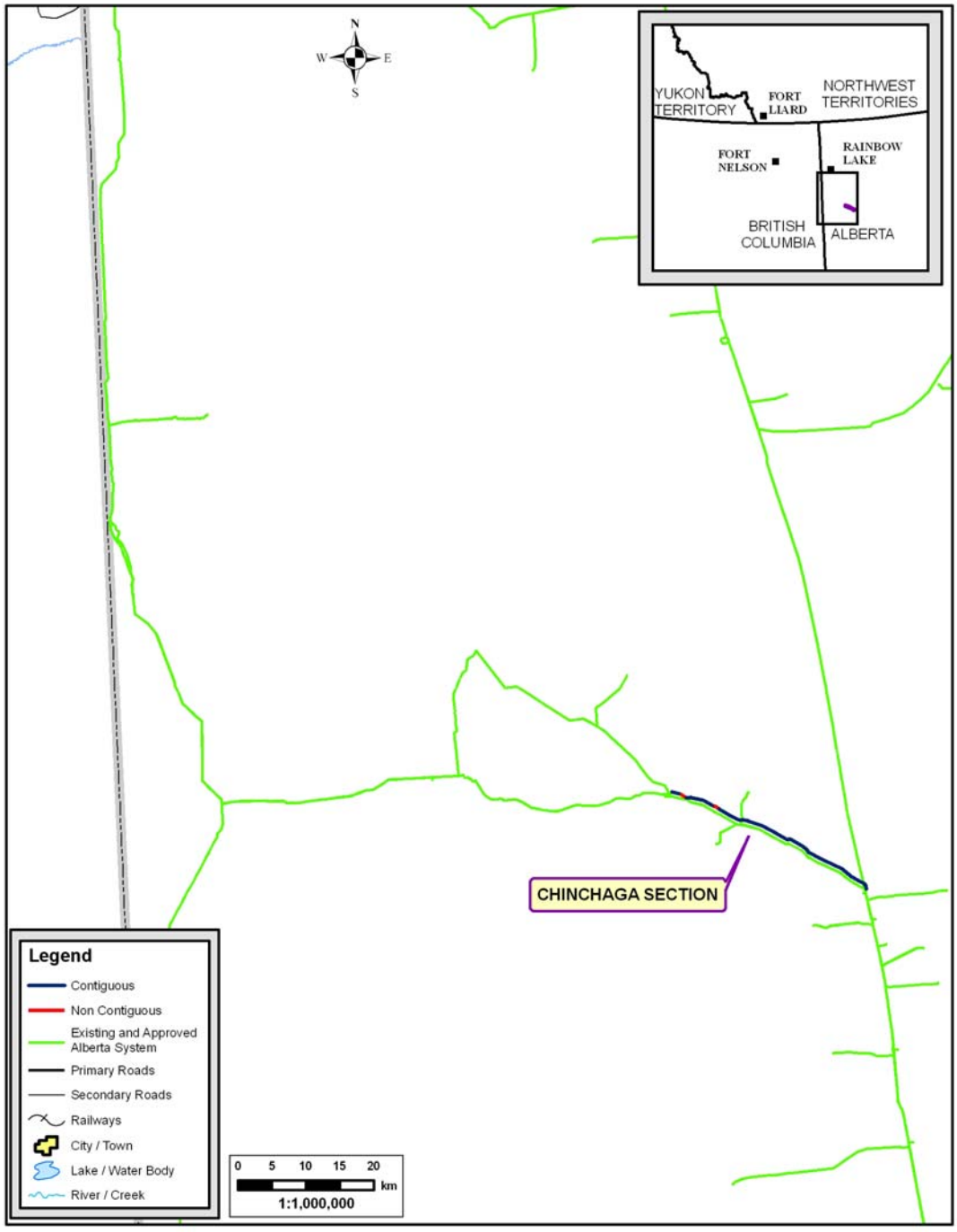


Figure 3-5: Contiguous and Non-contiguous ROW (Chinchaga Section)



3.2 Preliminary Footprint of Main Project Components

3.2.1 Pipeline

Dimensions of the pipeline construction ROW will vary depending on the ownership, location and nature of existing ROW being paralleled. Where available and practical, temporary work space will be obtained from existing parallel ROW to reduce potential disturbance.

The Project requires a minimum construction ROW of 32 m for safe and efficient construction. In addition to the 32 m, further land will be required for soil handling. The soil handling requirements are influenced by various factors, including ground conditions, land use, burial depth, crossings (bell holes), bends, and grade. These supplementary requirements will result in a construction ROW of greater than 32 m at specific locations. Where the route parallels existing disturbances, NGTL can make use of those existing disturbances to reduce the requirement for new lands to make up the construction ROW. In this case, 166 km (77%) of the Project parallels existing disturbances.

In addition to the construction ROW, temporary workspace will also be required on a site-specific basis at road, pipeline and watercourse crossings, log decking sites, truck turn-arounds and at other locations to accommodate pipeline construction activities. The construction ROW and temporary workspace will be reclaimed after construction, with the permanent easement maintained for pipeline operations.

3.2.2 Temporary Lands Needed for Construction

Temporary use of lands during construction for temporary infrastructure, such as construction access, pipe storage sites, contractor yards, construction camp sites and similar construction-related activities, will be required. Temporary use lands will be reclaimed after construction.

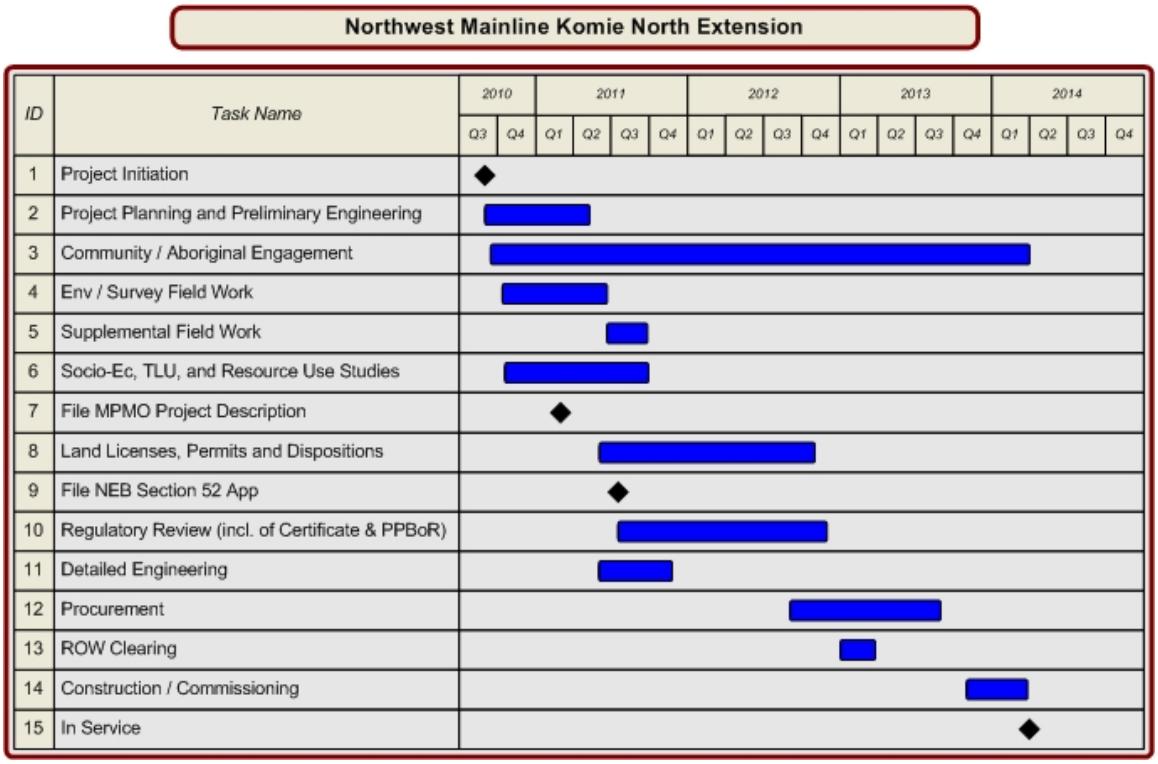
4.0 PROJECT ACTIVITIES

The Project will have the following phases:

- project definition;
- construction and commissioning;
- operations and maintenance; and
- decommissioning, abandonment, and site reclamation.

The overall project schedule is shown in Figure 4-1.

Figure 4-1: Overall Project Schedule



4.1 Project Definition

The project definition phase began in the third quarter of 2010 and is scheduled to be completed in 2011. Activities for this phase include:

- completing project planning and preliminary design in sufficient detail for preparation of regulatory applications;
- conducting preliminary environmental biophysical and socio-economic studies and assessments, including field surveys;
- conducting ongoing Aboriginal engagement, stakeholder relations and public consultation programs; and
- preparing regulatory applications and participating in the regulatory review process.

The information in this document is based on conceptual design. It will be refined over time as field and other data is collected and assessed, and as engineering and construction planning progresses through preliminary and detailed design. Changes might also be made to reflect the results of consultation and engagement programs, commercial negotiations, and economic, environmental and socio-economic assessments. The Application is scheduled for filing with the NEB in the third quarter of 2011.

4.2 Construction and In-Service Dates

In order to facilitate construction activities in winter 2013/2014 and to maximize local contracting, clearing activities are scheduled to take place during the first quarter of 2013. The pipeline and meter station construction is currently planned to start in the fourth quarter of 2013. Environmental timing windows will be taken into consideration during detailed construction planning. The anticipated in-service date for the Project is in the second quarter of 2014.

4.3 Operations and Maintenance

4.3.1 System Protection and Control

Once the Project is in service, it will be controlled from the OCC in Calgary as part of the integrated Alberta System. The OCC is staffed 24 hours per day, and uses a computer-based SCADA system to continuously monitor and control pipeline operations.

The pipeline control system will monitor pipeline flows, pressures, temperatures, and equipment status on a continuous basis. The SCADA system will alert the OCC operator of significant operational changes on the pipeline system.

4.3.2 Emergency Response

The existing emergency response plan for the Alberta System meets or exceeds regulatory requirements. The plan will be expanded to include the Northwest Mainline Komie North Extension and will ensure emergency preparedness activities and response strategies are in place.

Prior to in-service, NGTL will work with emergency response personnel in the areas in which it operates to ensure appropriate communications, understanding, and co-operation. This will ensure that company emergency plans appropriately link into plans maintained by other affected agencies.

4.3.3 Integrated Public Awareness

NGTL will follow the existing TransCanada Integrated Public Awareness program (**IPA**).

The IPA program is designed to inform key members of the public of facility locations and operational activities to:

- protect the public from injury;
- prevent or minimize impacts on the environment;
- protect the facilities from damage by the public; and
- provide an opportunity for ongoing public awareness.

4.3.4 Maintenance Programs

Regular preventative maintenance programs will be incorporated into the design and operation of the pipeline. These programs include:

- aerial patrols;
- internal inspections;
- cathodic protection monitoring; and
- pipeline markers at roads and pipeline watercourse crossings.

4.4 Decommissioning, Abandonment and Site Reclamation

The Project is expected to operate for 30 or more years. Decommissioning and abandonment activities will comply with all applicable federal and provincial regulatory requirements in force at the time.

5.0 LAND

5.1 Land Ownership

The Project is located entirely on provincially owned Crown lands in Alberta and BC.

5.1.1 Federally-Owned and Administered Land

The proposed pipelines do not traverse any federally owned or administered land in Alberta or BC.

5.2 Land Use

Komie North Section

The Komie North Section is located within the Etsho resource management zone (**RMZ**) of the Fort Nelson Land and Resource Management Plan (**LRMP**) (BC ILMB 1997). The management intent for this area is to provide for intensive development of resources such as timber, natural gas and minerals. The Fort Nelson LRMP supports opportunities for oil and gas transportation within the Etsho RMZ.

Townsoitoi Creek Section

The Townsoitoi Creek Section is within the Etsho RMZ of the Fort Nelson LRMP and traverses land in the Northern Rockies Regional Municipality (BC ILMB 1997). The management intent for this area is to provide for intensive development of resources such as timber, natural gas and minerals. The Fort Nelson LRMP supports opportunities for oil and gas transportation within the Etsho RMZ. The Townsoitoi Creek Section traverses forestry zoned lands in the Municipal District of Mackenzie. The proposed looping is compatible with this zoning.

Pyramid Section

The Pyramid Section traverses forestry zoned lands in Mackenzie County No. 23 and the Municipal District of Northern Lights No. 22. The proposed looping project is compatible with this zoning.

Chinchaga Section

The Chinchaga Section traverses forestry zoned lands in Clear Hills County. The proposed looping project is compatible with this zoning.

5.2.1 Agriculture

The Project does not traverse any agricultural land (Agriculture and Agri-Food Canada 2010).

5.2.2 Industry

Oil and gas activities are prevalent in the Project areas. Exploration and development activities related to the oil and gas sector include:

- seismic;
- pipelines and related facilities;
- well sites;
- gas processing plants; and
- access roads.

The main industry employers in the Project area include:

- oil and gas;
- forestry;
- sales and service occupations; and
- trade, transport and equipment operations.

Other activities are also present, including:

- forestry;
- trapping; and
- guiding and outfitting.

5.2.3 Recreation

There are no designated recreational sites in close proximity to the proposed pipeline routes in Alberta and BC. Outdoor recreational activities including hunting and winter activities such as snowmobiling are expected to occur throughout the Project areas. Recreational fishing occurs on the major watercourses.

5.2.4 Reserves Under the *Indian Act*

The Project route does not cross any Indian Reserves, as defined under the *Indian Act*.[5]

[5] R.S., 1985, c. I-5.

5.2.5 Designated Environmental and Cultural Sites

The Project does not cross any lands under the jurisdiction of Parks Canada, or designated cultural sites that are likely to restrict pipeline development.

Designated Provincial Environmental Sites

Komie North Section

The Komie North Section pipeline route does not cross any provincial parks or protected areas (BC Parks, 2010). For information on caribou and ungulate winter ranges, see Section 6.5.4.

There are no designated fisheries-sensitive watersheds crossed by the proposed Komie North Section pipeline route (BC MOE 2011a).

Townsoitoi Creek Section

The Townsoitoi Creek Section pipeline route traverses between two provincial protected areas in BC. The proposed route is within 1 km south of the boundaries of the Hay River Protected Area and 15 km north of the Ekwan Lake Protected Area (BC Parks, 2010).

There are no designated fisheries-sensitive watersheds crossed by the proposed Townsoitoi Creek Section pipeline route (BC MOE 2011a).

In Alberta, the Townsoitoi Creek Section does not cross any designated environmentally significant areas or ungulate winter ranges (ATPR 2009; ACC 2010).

Pyramid Section

The Pyramid Section traverses Environmentally Sensitive Area No. 548. For information on caribou and ungulate winter ranges, see Section 6.5.4.

The Pyramid Section pipeline route does not cross any provincial parks or protected areas (ACD 2010).

Chinchaga Section

The Chinchaga Section does not traverse any environmentally sensitive areas. For information on caribou and ungulate winter ranges, see Section 6.5.4. The Chinchaga Section pipeline route does not cross any provincial parks or protected areas (ACD 2010).

6.0 ENVIRONMENTAL FEATURES

This section provides an overview of environmental features for the Project. To reduce repetition, information has been combined for pipeline sections for which the described environmental features are similar.

6.1 Terrestrial Environment

6.1.1 Soils

Introduction

Regulatory consultation will be conducted to support the development of project-specific soil handling procedures for the Project. Soil handling procedures developed and implemented for the Project will be similar to those of the Horn River Mainline Cabin Section Project.

Komie North Section and Townsoitoi Creek Section

The Komie North Section is underlain by sedimentary bedrock of Upper and Lower and Cretaceous age from the Dunvegan and Fort St. John formations (MacIntyre *et al.* 1998). These formations are characterized by shale, siltstone, sandstone, mudstone, and conglomerates.

The Townsoitoi Creek Section is underlain by sedimentary bedrock of Upper and Lower and Cretaceous age from the Buckinghorse and Shaftsbury formations (MacIntyre *et al.* 1998). These formations are characterized by shale, siltstone, sandstone, mudstone, sideric concretions and massive conglomerate.

Surficial geology along the proposed pipeline routes is primarily organic. Till blankets also occur throughout these pipeline sections (Paulen *et al.* 2005, Fulton 1995).

The Komie North and Townsoitoi Creek Sections are primarily underlain by Organic Cryosols, with some Gray Luvisols and Dystric Brunisols, and are characterized by a subaquic very cold subarctic soil climate (Valentine *et al.* 1978). These soils are saturated for moderately long periods of time, and organic matter accumulates on the surface of the mineral soil.

The Komie North Section and Townsoitoi Creek Section are located within the Sporadic Discontinuous Permafrost zone (Natural Resources Canada 2011b). Frost penetration is deep in the winter and some permafrost exists in well-insulated soils, such as deep peat deposits.

Pyramid Section

The Pyramid Section is underlain by sedimentary bedrock of Upper and Lower Cretaceous age from the Dunvegan and Shaftesbury formations (Hamilton *et al.*

1999). These formations are characterized by shale, siltstone, sandstone and thin beds of ironstone.

The Pyramid Section is underlain by continuous glacial till deposits occurring on gentle to strong lower slopes and hummocky to undulating uplands, with lacustrine and organic deposits in the lowlands (Fox et al. 1987, Fulton 1995, Natural Regions Committee 2006).

The Pyramid Section is primarily underlain by Orthic Gray Luvisols; however, Gleyed subgroups are common. Steep erosional slopes are characterized by Regosolic soils, while Typic and Terric Mesisols are the dominant organic soils in poor-to-rich fens. Bogs generally have Fibric Mesisol soils and occasional Organic Cryosols. Peaty Gleysols are common (Natural Regions Committee 2006).

The Pyramid Section is located within the Sporadic Discontinuous Permafrost zone and Isolated Patches Permafrost zone (Natural Resources Canada 2011b).

Chinchaga Section

The western two thirds of the Chinchaga Section are underlain by Cretaceous marine shales of the Puskwaskau Formation. The eastern third is underlain by a complex of Cretaceous marine and delataic sediments of the Dunvegan Formation, which have formed sandstones, siltstones and shales, some of which are calcareous in nature (Hamilton *et al.* 1999, AGS 2011).

The Chinchaga Section is underlain mainly by glacial till with thin lacustrine veneers and intermittent aeolian deposits occurring toward the eastern part of the route. Surface expression ranges from hummocky uplands to more subdued undulating plains. Locally, coarse textured recent fluvial are found along watercourses with organic accumulations in lower-lying, poorly drained areas (Lindsay et al 1958, Natural Regions Committee 2006).

Soils are predominantly Gray Luvisols on the uplands with gleyed variants in imperfectly to poorly drained locations. Dystric and Eutric Brunisols are characteristic of the coarse, sandy deposits (recent fluvial and aeolian) with Mesisols dominating the organic fen and bog soils which tend to be found mainly in the lacustrine plains (Lindsay et al 1958, Natural Regions Committee 2006). Cryosols may occur in isolated locations, typically at depth in bogs or fens; however, the Chichaga Section is not mapped as falling within either the discontinuous or sporadic permafrost zone (Natural Resources Canada 2011b).

6.1.2 Vegetation

Introduction

Provincial database searches revealed no known records of plant species listed under Schedule 1 of *Species at Risk Act* (**SARA**) in the immediate vicinity of the Project (ACIMS 2010, BC CDC 2010b). Additionally, there are no SARA-listed species whose potential habitat occurs near the Project. However, a number of provincially-listed species and communities have the potential to occur along the proposed pipeline ROW.

Surveys will be undertaken for the Project to identify any sites supporting species and communities of conservation concern that might be directly or indirectly affected by the proposed Project.

Komie North Section

The Komie North Section of the pipeline route is located within the Northern Alberta Upland Ecoregion of the Taiga Plains Ecozone (Figure 6-1) (Natural Resources Canada 2011a).

Under the Biogeoclimatic Ecosystem Classification (**BEC**) system in BC, the Komie North Section is within the Fort Nelson Boreal White and Black Spruce Moist Warm 2 (**BWBSmw2**) variant (Meidinger and Pojar 1991). The BWBSmw2 sub-zone is characterized by mixed stands of trembling aspen, balsam poplar, paper birch, white spruce, black spruce, lodgepole pine and (rarely) balsam fir. Balsam poplar and white spruce are common on wetter sites. Lodgepole pine may be present on drier, poorer sites and black spruce is common on organic soils (DeLong *et al.* 1990). Distinguishing understory species in this sub-zone include:

- creamy peavine;
- tall lungwort;
- northern bedstraw; and
- bishop's-cap.

Wetlands are common within the BWBSmw2 and within the area of the Komie North Section, particularly the poor fen and treed bog wetland communities. Grasslands and low shrub/scrub communities are limited in the BWBSmw2.

Townsoitoi Creek Section

The Townsoitoi Creek Section is located within the Hay River Lowland Ecoregion of the Taiga Plains Ecozone (Natural Resources Canada 2011a). For the portion of the proposed Project in Alberta, this corresponds to the Boreal Forest Natural Region and Lower Boreal Highlands Natural Subregion (Natural Regions Committee 2006). Like the Komie North Section, the Townsoitoi Creek Section also traverses the Fort Nelson and BWBSmw2 variant (Meidinger and Pojar 1991).

Pyramid and Chinchaga Sections

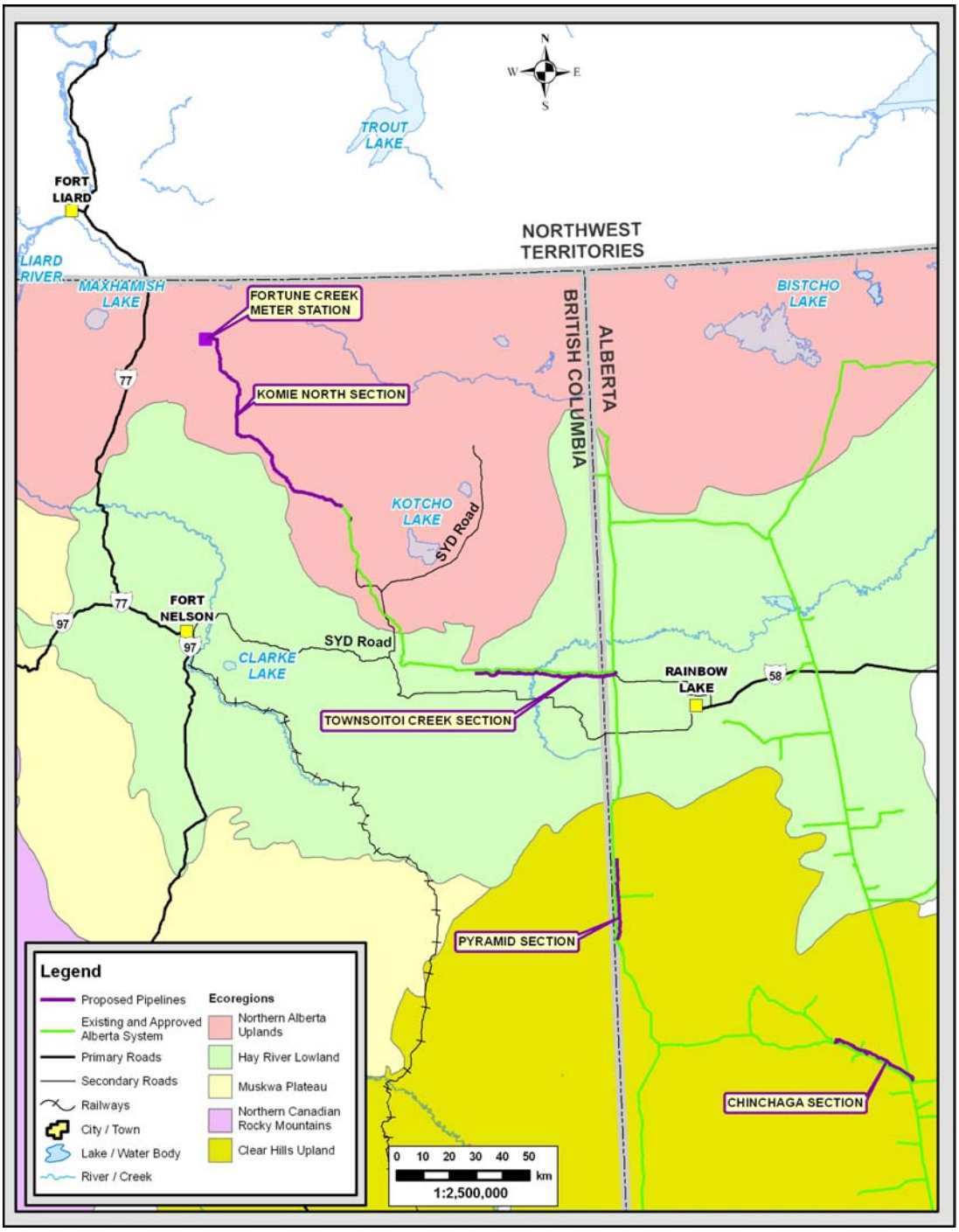
The Pyramid and Chinchaga Sections are located within the Clear Hills Upland Ecoregion of the Boreal Plains Ecozone (Natural Resources Canada 2011a). In Alberta, this area corresponds to the Boreal Forest Natural Region and Lower Boreal Highlands Natural Subregion (Natural Regions Committee 2006).

The Lower Boreal Highland Natural Subregion is the major zone of hybridization between lodgepole pine and jack pine. Stands may be dominated by pure lodgepole pine, pure jack pine and the full range of hybrids, with bearberry, lichen, common Labrador tea and common blueberry on the driest sites (Natural Regions Committee 2006).

Sites of average moisture and nutrient status may be pure or mixed stands of aspen, white spruce, white birch, hybrid pine and black spruce. Understory species include rose, Canada buffaloberry, hairy wild rye, bluejoint, bunchberry, wild sarsaparilla, dewberry and feathermosses (Natural Regions Committee 2006).

On nutrient-poor sites, lodgepole pine-jack pine hybrids form stands with black spruce; understory species include common Labrador tea, bog cranberry and feathermosses. On wetter sites, black spruce is typically the leading species but may contain white spruce. Wetlands include nutrient-poor black spruce fens with common Labrador tea, peat mosses and feathermosses. However, tamarack-black spruce stands or willow-dwarf birch shrublands with sedges, bluejoint, and golden moss occur in wetlands receiving nutrient rich waters (Natural Regions Committee 2006).

Figure 6-1: Ecoregions Traversed by the Project



6.1.3 Wetlands

Introduction

Wetlands along the pipeline ROWs will be classified using the Canadian Wetlands Classification System (National Wetlands Working Group 1997) that defines wetlands based on functional groups. Wetland functional groups are subdivided into five main categories on the basis of physical and biological processes.

Field and desktop studies will be done to assist in reducing the number of directly and indirectly affected wetlands. In areas of extensive wetland, results of field and desktop studies will be used to develop suitable mitigation measures, where avoidance is not possible.

Komie North Section

This area supports extensive wetlands that contain sporadic, discontinuous permafrost (Natural Resources Canada 2011b; Natural Resources Canada 2011c). Functional wetland types are dominated by peat plateau bogs with collapse scars as well as veneer bogs on areas with gentle slopes.

Townsoitoi Creek Section

Extensive wetlands are also present along the Townsoitoi Creek Section (Natural Resources Canada 2011c). Permafrost is also prevalent with peat plateau bogs. Wooded fens are also common, but do not support extensive areas of permafrost; however, small frost mounds are common.

Effort has been made to avoid open water wetlands in the pipeline routing to date. However, smaller ephemeral, semi-permanent and permanent wetlands are present throughout the area and not all of them can be practically avoided.

Pyramid and Chinchaga Sections

Wetlands in the Pyramid and Chinchaga Sections occur in depressional basins and in association with watercourses and water bodies (Natural Resources Canada 2011c). Wooded fens with frost mounds are the most common wetland type with a diverse assemblage of other wetlands, including permafrost peat plateau bogs, open patterned and nonpatterned fens as well as shrubby swamps (Vitt et al. 1996).

6.1.4 Wildlife

Introduction

Wildlife surveys and general wildlife habitat assessments will be conducted for the Project to identify the presence or potential for species of management concern that may occur, as well as document important wildlife habitat and/or habitat features.

The results of the surveys will be used to identify regulatory requirements where applicable and to develop practical mitigation measures to minimize potential impacts to wildlife species and wildlife habitat, with a focus on mitigations for species of management concern.

Species of management concern are determined by assessing the ecological, human and economic importance of wildlife species that occur in the region surrounding a project. Determining the ecological importance of wildlife can be approached through reviewing their conservation status. Wildlife species are assigned status rankings based on many factors, including population decline and sensitivity to disturbances. The following federal and provincial conservation status rankings were used:

- SARA (SARPR 2011);
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC 2010);
- British Columbia Conservation Data Centre (BC CDC 2011a);
- Alberta Sustainable Resource Development (ASRD 2005); and
- *Alberta Wildlife Act* (ASRD 2010).

The SARA listed Schedule 1 wildlife species likely to occur in the four sections of the Project area include woodland caribou, wood bison, wolverine, Canada warbler, common nighthawk, olive-sided flycatcher, rusty blackbird, and western toad. A comprehensive table will be created that identifies both federal and provincial species of management concern that are likely to occur in the Project area, once the wildlife and habitat surveys are completed.

Preliminary desktop review was used to identify potential wildlife issues for each section of the proposed Project. Results are summarized below.

Komie North Section

The Komie North Section of the pipeline route traverses the approved Wildlife Habitat Area (#9-074) in BC (BC MOE 2010 d), the Fortune Core Area of the Maxhamish and Snake-Sahtaneh caribou herds (BC MOE 2010c, e), and identified Ungulate Winter Ranges (see Figure 6-2).

Townsoitoi Creek Section

In BC, the Townsoitoi Creek Section does not traverse any known Wildlife Habitat Areas, caribou ranges, or Ungulate Winter Ranges (BC MOE 2010c,d).

In Alberta, the Townsoitoi Creek Section is located within the NW4 - Upper Hay planning area. A review of the Alberta Sustainable Resource Development Landscape Analysis Tool shows that the proposed pipeline route is not located within or adjacent to any sensitive features (LAT 2010).

Pyramid Section

The Pyramid Section crosses an Ungulate Winter Range in Alberta associated with the Hay River (ASRD 2007). This area is also referred to as a Key Wildlife and Biodiversity Zone for Ungulates (LAT 2010). Activity within this area is not permitted from January 15 to April 30, unless otherwise approved from the appropriate regulatory authority (GoA 2010).

The Pyramid Section is located within the Chinchaga Caribou Range and within a Secondary Grizzly Bear Zone (Alberta Caribou Committee 2010, LAT 2010). The Alberta Government Fisheries and Wildlife Management Information System lists several records for woodland caribou, although none closer than 4.5 km (FWMIS 2011). This section traverses the provincially designated Environmentally Significant Area No. 548 which covers northern Alberta (7772 km²) and is recognized as habitat for woodland caribou (ATPR 2009).

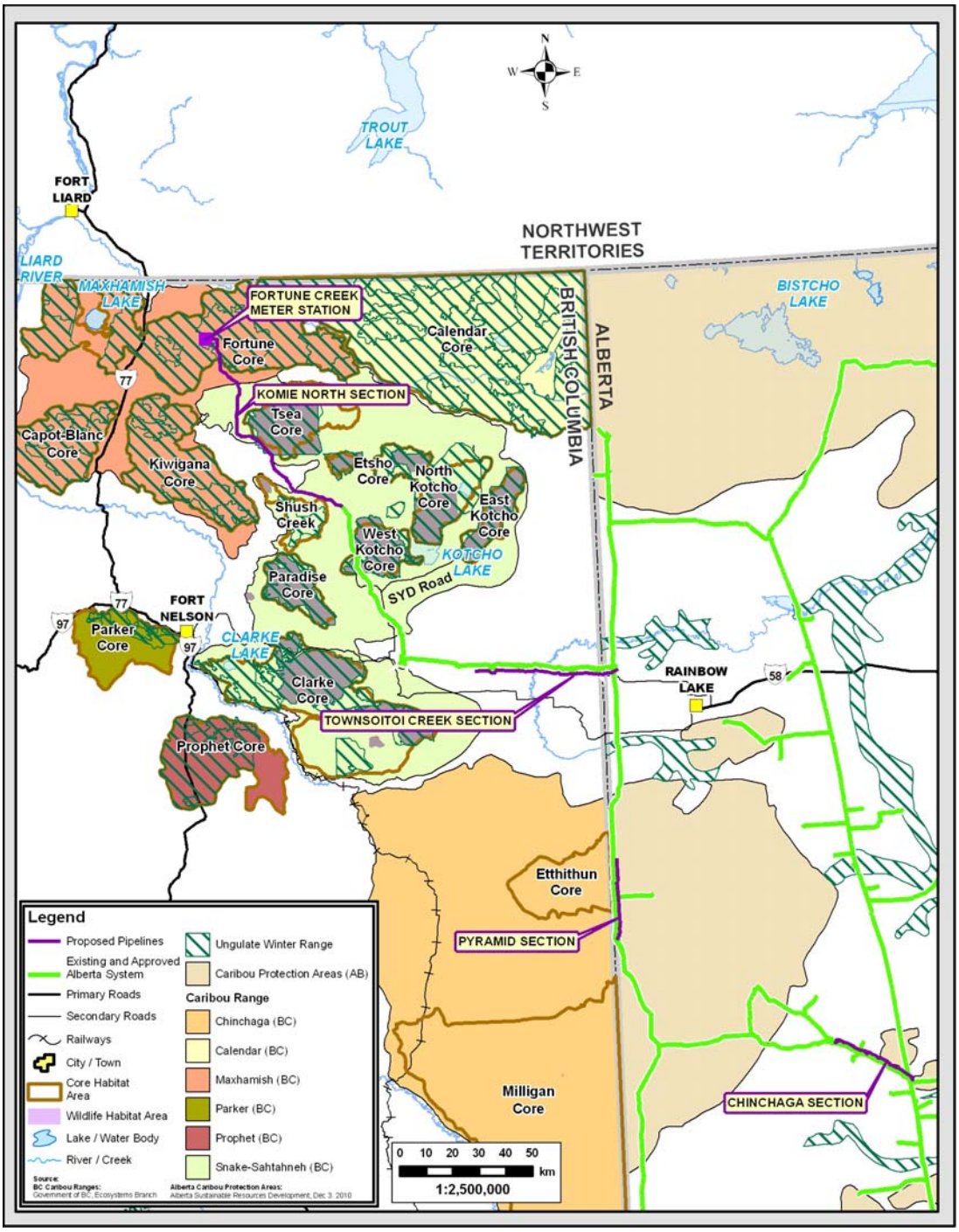
Trumpeter swan breeding lakes are located in the area; however, current mapping indicates there are no lakes within 800 m of the proposed pipeline (LAT 2010, ASRD 2007).

Chinchaga Section

The Chinchaga Section does not traverse provincially designated Key Wildlife or Biodiversity Zones for Ungulates (LAT 2010). The southern section at the Meikle River Compressor Station is adjacent to a Wildlife Zone (river corridor) for ungulates situated along the lower Hotchkiss River (LAT 2010).

The Chinchaga Section intersects the southwest edge of the Chinchaga Caribou Range, and is located within a Secondary Grizzly Bear Zone (LAT 2010, FWMIS 2011). The Alberta Government Fisheries and Wildlife Management Information System lists several records for woodland caribou and grizzly bear within 3 km of the Chinchaga Section (FWMIS 2011). This section does not intersect with provincially designated Environmentally Significant Areas (ATRP 2009). The Chinchaga region is an important breeding area for trumpeter swans; however, current information indicates there are no trumpeter swan water bodies or occurrences within 20 km of the proposed pipeline (LAT 2010, FWMIS 2011).

Figure 6-2: Caribou Ranges Traversed by the Project



6.2 Aquatic Environment

6.2.1 Surface Water and Groundwater

Komie North Section

The Komie North Section route lies within the Sahtaneh, Petitot and Kiwigana River sub-basins of the Fort Nelson River basin (BC MOE 2011a,b).

Potential watercourse crossings have been identified, confirmed and surveyed during a field survey. The pipeline route traverses 60 named and unnamed watercourses, which include 19 classified watercourses (S1-S6), 2 beaver dam complexes, 16 unknown watercourses (as a result of the recent alignment change – these sites have not yet been surveyed), and 23 non-classified drainages (Table 6-1). The named watercourses are:

- Brandt Creek;
- Komie Creek;
- Gote Creek; and
- Dilly Creek.

One domestic water supply well was identified approximately 500 m from the proposed route (WRBC 2011). No other wells have been identified closer than 1 km from the pipeline route. Appropriate groundwater protection measures will be implemented during construction and operations.

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Brandt Creek	565615	6570177	5-20	S2	July 15 to August 15	Trenchless/isolated crossing methods	Temporary clear-span bridge
Komie Creek	564207	6570724	5-20	S2	July 15 to August 15	Trenchless/isolated crossing methods	Temporary clear-span bridge
Tributary to Komie Creek	562552	6570989	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	561546	6571263	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	560803	6571365	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	558124	6571696	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	557548	6572199	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Small unknown water body	556886	6573200	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Komie Creek	556360	6574067	< 1.5	S4	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	556242	6574157	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	555983	6574762	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Komie Creek	554867	6575921	≤ 3	S6	N/A	Isolated if water present/ open cut if dry or frozen to bottom	Ramp and culvert
Tributary to Etsho Creek	548531	6586323	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Etsho Creek	548478	6586354	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Kiwigana River	536160	6594689	N/A	Beaver Dam Complex	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Kiwigana River	536172	6595594	N/A	Beaver Dam Complex	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Kiwigana River	536127	6598443	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Dilly Creek	536318	6606051	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Dilly Creek	537056	6610226	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Dilly Creek	536469	6611869	1.5-5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Dilly Creek	536374	6612446	5-20	S2	July 15 to August 15	Trenchless/isolated crossing methods	Temporary clear-span bridge
Tributary to Dilly Creek	534190	6614246	<1.5	S4	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Dilly Creek	534018	6614402	<1.5	S4	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Dilly Creek	534011	6614407	<1.5	S4	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	531740	6616467	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	530813	6616949	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	530093	6617434	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529960	6617524	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529851	6618542	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529841	6619017	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529785	6621619	1.5 to 5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Emile Creek	529784	6621685	1.5 to 5	S3	July 15 to August 15	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529759	6622812	5 to 20	S2	July 15 to August 15	Trenchless/isolated crossing methods	Temporary clear-span bridge
Tributary to Emile Creek	529758	6622866	5 to 20	S2	July 15 to August 15	Trenchless/isolated crossing methods	Temporary clear-span bridge
Tributary to Emile Creek	529559	6623553	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	529449	6623812	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Tributary to Emile Creek	528965	6625001	Unknown	Unknown	July 15 to August 15	Trenchless/isolated crossing methods if water present. Open cut if dry or frozen to bottom	Temporary clear-span bridge
Non-classified Drainages							
Tributary to Brandt Creek	573173	6567132	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Brandt Creek	572793	6567451	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Brandt Creek	572604	6567617	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Brandt Creek	565805	6570166	N/A	NCD	N/A	Open cut	Ramp and culvert

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Brandt Creek	565740	6570177	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Komie Creek	555441	6575482	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Komie Creek	554075	6577156	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Etsho Creek	550073	6580814	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Etsho Creek	548788	6585747	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Etsho Creek	548734	6585809	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Etsho Creek	548654	6585928	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Tsea River	545202	6589824	N/A	NCD	N/A	Open cut	Ramp and culvert
Gote Creek	543294	6591229	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Kiwigana River	540587	6592524	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Kiwigana River	538841	6592419	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Kiwigana River	536191	6597084	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Kiwigana River	536200	6597593	N/A	NCD	N/A	Open cut	Ramp and culvert

Table 6-1: Pipeline Watercourse Crossings for Komie North Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Tributary to Emile Creek	528716	6626680	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Emile Creek	528756	6627514	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Emile Creek	528819	6629082	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Emile Creek	528592	6629187	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Emile Creek	527098	6629312	N/A	NCD	N/A	Open cut	Ramp and culvert
Tributary to Emile Creek	526901	6629459	N/A	NCD	N/A	Open cut	Ramp and culvert

NOTES:

[1] Determined from field results and criteria in the BC MOF (1998).
S1 = fish bearing with a channel width of 20-100 m
S2 = fish bearing with a channel width of 5-20 m
S3 = fish bearing with a channel width of 1.5-5.0 m
S4 = fish bearing with a channel width of <1.5 m
S5 = non-fish bearing with a channel width of >3.0 m
S6 = non-fish bearing with a channel width of <3.0 m
Beaver Dam Complex = known or potentially fish bearing beaver-impacted watercourse
NCD = non-classified drainages that do not have a continuously defined channel bed (less than 100 m long) and appear to contain water only during precipitation events

[2] Determined from field results and criteria in BC MOE (2011f). Note, the stream classification systems in Alberta and BC are different. In BC, streams are classified from S1 to S6 based on fish-bearing status and channel width.

[3] The crossing method for each watercourse will be evaluated and confirmed during the ongoing planning process.

Townsoitoi Creek Section

The Townsoitoi Creek Section route lies within the Hay River and Kotcho Lake sub-basins of the Fort Nelson River and Hay River basins in BC (BC MOE 2011a,b).

Potential watercourse crossings have been identified, confirmed and surveyed during field surveys. The pipeline route traverses nine watercourses, which include named and unnamed watercourses (Table 6-2). The named watercourses are:

- Townsoitoi Creek;
- Hay River;
- Timberwolf Creek; and
- Little Hay River.

One non-domestic water supply well has been identified approximately 250 m north of the pipeline route in BC (WRBC 2011). No other wells have been identified closer than 1 km from the pipeline route in BC or Alberta (WRBC 2011, AWWID 2011). Appropriate groundwater protection measures will be implemented during construction and operations.

Table 6-2: Pipeline Watercourse Crossings for Townsoitoi Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Townsoitoi Creek	642935	6504288	10.7	S2	July 15 to March 31	Trenchless/isolated crossing methods	Temporary clear-span bridge
Hay River	650149	6504339	41.4	S1	July 15 to March 31	Trenchless/isolated crossing methods	Temporary clear-span bridge
Timberwolf Creek	661056	6502957	1.1	S4	July 15 to March 31	Isolated if water present/open cut if dry or frozen to bottom.	Temporary clear-span bridge
Little Hay River	673981	6503072	8.1	S2	July 15 to March 31	Trenchless/isolated crossing methods	Temporary clear-span bridge
Unnamed drainage to Kotcho River	632002	6503828	N/A	Beaver Dam Complex	July 15 to March 31	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Unnamed drainage to Townsoitoi Creek	644017	6504244	N/A	Beaver Dam Complex	July 15 to March 31	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Unnamed drainage to Townsoitoi Creek	645411	6504204	N/A	Beaver Dam Complex	July 15 to March 31	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge
Unnamed drainage to the Hay River	648053	6504209	N/A	Beaver Dam Complex	July 15 to March 31	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-2: Pipeline Watercourse Crossings for Townsoitoi Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Oxbow of the Hay River	651830	6504023	N/A	Beaver Dam Complex	July 15 to March 31	Isolated if water present/ open cut if dry or frozen to bottom	Temporary clear-span bridge

NOTES:

[1] Determined from field results and criteria in the BC MOF (1998).
S1 = fish bearing with a channel width of 20-100 m
S2 = fish bearing with a channel width of 5-20 m
S3 = fish bearing with a channel width of 1.5-5.0 m
S4 = fish bearing with a channel width of <1.5 m
S5 = non-fish bearing with a channel width of >3.0 m
S6 = non-fish bearing with a channel width of <3.0 m
Beaver Dam Complex = known or potentially fish bearing beaver-impacted watercourse
NCD = non-classified drainages that do not have a continuously defined channel bed (less than 100 m long) and appear to contain water only during precipitation events

[2] Results from field results in 2009 and 2010 and BC MOE 2011f. Note, the stream classification systems in Alberta and BC are different. In BC, streams are classified from S1 to S6 based on fish-bearing status and channel width.

[3] The crossing method for each watercourse will be evaluated and confirmed during the ongoing planning process.

Pyramid Section

The Pyramid Section lies within the Hay River Basin (AENV 2011).

Potential watercourse crossings have been identified, confirmed and surveyed during field surveys. The pipeline loop traverses nine watercourses, which include named and unnamed watercourses, and two non-classified drainages (Table 6-3). The named watercourses are:

- Ring Reed Creek;
- Foulwater Creek;
- Fontas River; and
- Levellers Creek.

Four industrial water supply wells have been identified within 800 m of the pipeline route in Alberta (AWWID 2011). In addition, one domestic water supply well has been identified approximately 1 km from the pipeline route in BC (WRBC 2011). No other wells have been identified closer than 1 km from the pipeline route. Appropriate groundwater protection measures will be implemented during construction and operations.

Table 6-3: Pipeline Watercourse Crossings for Pyramid Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Ring Reid Creek	322061	6404596	2.2 to 4.5	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge if flowing. Ice Bridge/ Snow Fill if frozen.
Unnamed tributary to Ring Reid Creek	322422	6406429	0.6 to 0.8	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge if flowing. Ice Bridge/ Snow Fill if frozen.
Unnamed tributary to Foulwater Creek	322957	6418221	0.5 to 1.1	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge if flowing. Ice Bridge/ Snow Fill if frozen.
Foulwater Creek	322978	6422303	4.7 to 8.1	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge if flowing. Ice Bridge/ Snow Fill if frozen.
Fontas River	323298	6424456	12.0 to 16.0	Class C	July 16 to April 15	Trenchless/ Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge if flowing. Ice Bridge/ Snow Fill if frozen
Tributary to the Fontas River	323409	6426554	1.0 to 1.5	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Logfill/culvert if flowing. Ice Bridge/ Snow Fill if frozen.
Levellers Creek	323534	6430077	2.5 to 6.0	Class C	July 16 to April 15	Trenchless/ Isolate if water present/open cut if dry or frozen to bottom	Temporary clear-span bridge

Table 6-3: Pipeline Watercourse Crossings for Pyramid Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Non-classified Drainages							
Unnamed drainage to Fontas River	323437	6425443	1.2 to 1.7	Class C	July 16 to April 15	Isolate if water present/open cut if dry or frozen to bottom	Logfill/swamp mats if flowing. Snow fill/ice bridge if frozen.
Unnamed drainage to Ring Reed Creek	322751	6408734	N/A	N/A	N/A	Open cut	Logfill/swamp mats if flowing. Snow fill/ice bridge if frozen.

NOTES:

[1] Determined from the AENV Code of Practice Management Area Map for Peace River (AENV 2006).
Class C = Moderate sensitivity; habitat areas are sensitive enough to be potentially damaged by unconfined or unrestricted activities within the water body; broadly distributed habitats supporting local fish species populations.
NCD = non-classified drainages that do not have a continuously defined channel bed (less than 100 m long) and appear to contain water only during precipitation events

[2] Instream windows of least risk for Alberta watercourses are derived from Restricted Activity Periods listed on the ASRD website (ASRD 2011). Note, the stream classification systems in Alberta and BC are different. In Alberta, streams are classified from A to D based on decreasing sensitivity.

[3] The crossing method for each watercourse will be evaluated and confirmed during the ongoing planning process.

Chinchaga Section

The Chinchaga Section lies within the Hotchkiss River and Meikle River sub-basins of the Peace River drainage in Alberta (AENV 2011b).

Potential watercourse crossings have been identified based on 1:10,000 maps. The Chinchaga Section crosses 12 mapped watercourses (Table 6-4). All identified watercourses are unnamed tributaries to either Hotchkiss River or Meikle River. Field surveys have not yet been conducted for the watercourses crossed by the Chinchaga Section, and therefore detailed information on channel characteristics, drainage classification, instream work windows, or crossing methods is not yet available.

Eight industrial and two domestic water supply wells have been identified within 1 km of the pipeline route (AWWID 2011). Appropriate groundwater protection measures will be implemented during construction and operations.

Table 6-4: Pipeline Watercourse Crossings for Chinchaga Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Unnamed tributary to Hotchkiss River	425417	6341570	Information not yet available	Class C	July 16 to Aug. 31	Information not yet available	Information not yet available
Unnamed tributary to Hotchkiss River	423020	6343427	Information not yet available	Class C	July 16 to Aug. 31	Information not yet available	Information not yet available
Unnamed tributary to Hotchkiss River	421464	6344304	Information not yet available	Class C	July 16 to Aug. 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	420230	6345100	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	416418	6347789	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	414388	6349168	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	413391	6349838	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	409988	6351085	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	407385	6352782	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	404965	6354447	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available
Unnamed tributary to Meikle River	402586	6355011	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available

Table 6-4: Pipeline Watercourse Crossings for Chinchaga Section

Watercourse Name	Preliminary Location (UTM Zone 10)		Channel Width (m)	Stream Classification[1]	Instream Window of Least Risk[2]	Proposed Pipeline Crossing Method[3]	Proposed Equipment Crossing Method[3]
	Easting	Northing					
Unnamed tributary to Meikle River	402395	6355071	Information not yet available	Class C	July 16 to Jan 31	Information not yet available	Information not yet available

NOTES:

[1] Determined from the AENV Code of Practice Management Area Map for Peace River (AENV 2006).
Class C = Moderate sensitivity; habitat areas are sensitive enough to be potentially damaged by unconfined or unrestricted activities within the water body; broadly distributed habitats supporting local fish species populations
NCD = non-classified drainages that do not have a continuously defined channel bed (less than 100 m long) and appear to contain water only during precipitation events

[2] Instream windows of least risk for Alberta watercourses are derived from Restricted Activity Periods listed on the ASRD website (ASRD 2011). Note, the stream classification systems in Alberta and BC are different. In Alberta, streams are classified from A to D based on decreasing sensitivity. The least risk period will be confirmed based on field investigation.

[3] The crossing method for each watercourse will be evaluated and confirmed during the ongoing planning process.

6.2.2 Fish and Fish Habitat

Introduction

Field assessments of the Project watercourse crossings will be used to:

- assess the sensitivity of each crossing site;
- confirm the preliminary crossing method selected for each site; and
- develop suitable mitigation measures for the proposed crossings.

There is potential for harmful alteration, disruption or destruction of fish habitat to occur during construction of water crossings; however, applicable Fisheries and Oceans Canada (**DFO**) Operational Statements and DFO recommendations for the Pacific Region and Alberta will be followed, reducing the potential for adverse effects. An information package will be submitted to the appropriate DFO office once proposed water crossing methods have been evaluated and fisheries studies have been completed.

The work windows of least risk for pipeline watercourse crossings in BC will depend on the presence of spring and fall spawning species (BC OGC 2003a,b). If spring spawning species are present, the work window of least risk will likely be July 15 to March 31. Where fall spawning species are present, the work window of least risk will likely be June 15 to August 15. Where both spring and fall spawning species are present, the work window of least risk will likely be July 15 to August 15. For watercourse crossings in Alberta along the Pyramid Section, the likely restricted activity period (**RAP**), which needs to be avoided, is April 16 to July 15 due to the presence of Arctic grayling (ASRD 2011). For watercourse crossings along the Chinchaga Section , the likely RAP is September 1 to July 15 for tributaries of the Hotchkiss River due to the presence of Arctic grayling and mountain whitefish and February 1 to July 15 for the tributaries of the Meikle River due to the presence of Arctic grayling and burbot (ASRD 2011). However, timing windows for the Komie North Section, the Townsoitoi Creek Section, the Pyramid Section and Chinchaga Section will be confirmed with the BC Ministry of Environment and Alberta Environment.

The fish species potentially present in Project watercourse crossings, including identification of those which might be listed provincially or federally under the SARA, are presented in Table 6-5 (FISS 2011; Nelson and Paetz 1992; McPhail 2007).

Table 6-5: Fish Species Potentially Present in Project Watercourse Crossings

Family	Common Name	Scientific Name	SARA Status (Schedules 1 or 2)	Provincial Status (BC)	Provincial Status (Alberta)	Komie North[1]	Townsoitoi Creek[1]	Pyramid[1]	Chinchaga[1]
Salmonidae	Chum salmon	*Oncorhynchus keta*	-	-	-	X	-	-	-
Salmonidae	Inconnu	*Stenodus leucichthys*	-	Blue	-	X	X	X	-
Salmonidae	Mountain whitefish	*Prosopium williamsoni*	-	-	-	-	-	-	X
Gadidae	Burbot	*Lota lota*	-	-	-	X	X	X	X
Hiodontidae	Goldeye	*Hiodon alosoides*	-	Blue	-	X	X	X	-
Esocidae	Northern pike	*Esox lucius*	-	-	-	X	X	X	X
Percidae	Walleye	*Sander vitreum*	-	-	-	X	X	X	-
Catostomidae	Largescale sucker	*Catostomus macrocheilus*	-	-	-	X	-	-	-
Catostomidae	Longnose sucker	*Catostomus catostomus*	-	-	-	-	X	X	X
Catostomidae	White sucker	*Catostomus commersoni*	-	-	-	X	X	X	X
Gasterosteidae	Ninespine stickleback	*Pungitius pungitius*	-	Red	-	X	-	X	-
Gasterosteidae	Brook stickleback	*Culea inconstans*	-	-	-	-	X	X	-
Cottidae	Slimy sculpin	*Cottus cognatus*	-	-	-	X	X	X	-
Cottidae	Spoonhead sculpin	*Cottus ricei*	-	-	-	X	X	-	X
Percopsidae	Troutperch	*Percopis omiscomaycus*	-	-	-	X	X	X	X
Thymallinae	Arctic grayling	*Thymallus arcticus*	-	-	Special Concern	-	X	X	X
Cyprinidae	Emerald shiner	*Notropis atherinoides*	-	-	-	X	-	-	-
Cyprinidae	Finesecale dace	*Phoxinus neogaeus*	-	-	-	X	X	X	-
Cyprinidae	Flathead chub	*Platygobio gracilis*	-	-	-	X	-	-	-
Cyprinidae	Lake chub	*Couesius plumbeus*	-	-	-	-	X	X	X
Cyprinidae	Longnose dace	*Rhinichthys cataractae*	-	-	-	X	X	-	-
Cyprinidae	Pearl dace	*Margariscus margarita*	-	-	-	-	-	X	-

NOTES:

[1] "X" indicates presence.

Komie North Section

The Fort Nelson River basin provides habitat for several fish species (FISS 2011) listed in Table 6-5. Among the fish species expected to occur in the area, none are listed under Schedule 1 of SARA. Inconnu and goldeye are provincially blue-listed in BC, and ninespine stickleback (specifically in the Fort Nelson River watershed) is red-listed (BC CDC 2010a).

Townsoitoi Creek, Pyramid, and Chinchaga Sections

The Hay River, Meikle River, and Hotchkiss River basins provide habitat for several fish species (Nelson and Paetz 1992, McPhail 2007). A variety of non-sportfish species were also recorded in the watersheds traversed by the Townsoitoi Creek, Pyramid, and Chinchaga Sections (Nelson and Paetz 1992, McPhail 2007, FISS 2011, FWMIS 2011). These species are listed in Table 6-5. Of these fish species, none are listed under Schedule 1 of SARA. Inconnu and goldeye are provincially blue-listed in BC, and ninespine stickleback is red-listed (BC CDC 2010a). Arctic grayling is listed as a species of Special Concern in Alberta.

6.2.3 Navigable Waters

Some navigable waters may be affected by trenched pipeline crossing methods and by the installation of portable bridges.

Along the Komie North Section pipeline route, five watercourses are expected to be navigable (i.e., will require a permit under the *Navigable Waters Protection Act* in order to be crossed) including Brandt Creek, Komie Creek, Dilly Creek and two tributaries of Emile Creek. Additionally, a number of large beaver dam complexes in the area have the potential to also be considered navigable. Aquatic surveys have not yet been conducted at 16 Komie North Section watercourse crossing sites, due to recent alignment changes, and some of these sites are also potentially navigable. Along the Townsoitoi Section, three watercourses are expected to be navigable including Townsoitoi Creek, Hay River and Little Hay River. Additionally, a number of large beaver dam complexes in the area have the potential to also be considered navigable.

Along the Pyramid Section pipeline route, four watercourses are expected to be considered navigable, including Ring Reid Creek, Foulwater Creek, Fontas River, and Levellers Creek.

As survey data has not yet been collected for the Chinchaga section, it is unknown how many watercourses will be considered navigable.

If the navigability of any particular waterway is in question or unknown, a request for determination of navigability will be submitted to the Transport Canada – Navigable Waters Protection Program in the appropriate province. For those

watercourses deemed to be navigable, an application package will be submitted to Navigable Waters for review.

6.3 Atmospheric Environment

An air quality assessment will be conducted for the construction and operation phases of the Project consisting of a comprehensive inventory of emissions, a comparison to any existing applicable regulatory reporting requirements, and as appropriate, a qualitative or quantitative assessment of potential effects. The emissions inventory will include criteria air contaminants including sulphur dioxide (SO_2), oxides of nitrogen (NO_X) including nitrogen dioxide (NO_2), carbon monoxide, (CO), plus inhalable (PM_{10}) and respirable particulate matter ($PM_{2.5}$). Also included will be emissions of greenhouse gasses, including carbon dioxide (CO_2), nitrous oxide (N_2O), and methane (CH_4).

All potential sources of air emissions will be identified and either quantitatively or qualitatively assessed for both the construction and operation phases of the Project. In general, emission sources will only be qualitatively assessed if they are deemed to emit negligible quantities of air emissions. Emission calculations will be done following standard methodologies, and the assessment will fully detail all assumptions made and provide references where applicable.

Sources to be considered in the air quality assessment for the construction phase of the Project include heavy equipment used in land clearing, grubbing, and pipeline construction operations (both on-road and off-road), any equipment associated with a construction camp, fugitive dust emissions, and any open burning associated with land clearing. Sources to be considered for the operations phase of the Project include flyovers of the pipeline, maintenance trips, and fugitive emission from the pipeline.

6.4 Acoustic Environment

Some noise will result from equipment and traffic during Project construction. Due to the remoteness of the areas, disturbance caused by ambient noise during Project construction is minimal. This is primarily caused by on and off-road equipment. Potential receptors to nuisance noise emissions include local residences and wildlife. As construction is a temporary activity, construction-related noise is exempt from provincial regulations. An assessment of the acoustic environment will therefore not be required for the construction phase of the Project.

With the exception of in-line inspection and general maintenance activities, noise generated by the operation of the Project's pipeline sections is expected to be negligible. Operational noise related to the pipeline will not contribute to ambient noise levels in the area. An assessment of the acoustic environment will therefore not be required for the operational phase of the Project.

6.5 Waste Disposal

Typical wastes generated during the construction and operations of a pipeline include:

- motor oils;
- hydraulic fluids;
- welding materials;
- pipe coatings;
- drilling fluid;
- construction materials; and
- camp and domestic waste.

The handling and disposal of waste will be different for hazardous and non-hazardous materials and will be in accordance with the Environmental Protection Plan. This plan will meet the requirements of all applicable legislation.

6.6 Cultural Environment

6.6.1 Heritage Resources

An archaeological assessment program will be conducted in areas with archaeological potential that might be disturbed during construction of the Project.

Identification of high and moderate potential locations for cultural finds will be based on a number of regional and local factors. Careful consideration will be given to:

- ethnographic patterns of settlement;
- land use and resource exploitation;
- access;
- known gathering places;
- travel corridors (including waterways);
- the kinds and distribution of Aboriginal food sources;
- restrictions on site location imposed by physical terrain;
- climate regimes; and
- other factors, such as soil composition.

Areas identified as being of high or moderate potential will include:

- areas of elevation change including micro topographic changes in elevation;
- areas adjacent to water sources, such as river terraces and valleys; and
- areas with previously recorded sites.

6.6.2 Traditional Land and Resource Use

NGTL initiated an engagement process with potentially affected Aboriginal communities in BC and Alberta. Based on the outcome of this initial engagement process, traditional land and resource use studies may be undertaken for specific sites along the proposed routes.

Such studies will focus on current use of land for traditional purposes in the study areas, identified by the Aboriginal community, and will capture knowledge regarding the significance of the sites identified during fieldwork.

6.6.3 Socio-Economic Environment

The pipeline routes for the Project are entirely on BC and Alberta provincial Crown land. These areas have low population densities and limited infrastructure. Construction will use existing infrastructure and services such as roads and rail line staging areas throughout the Project area.

A socio-economic assessment for the Project will consider the effects of construction and operation of the Project on existing infrastructure and services, employment, economy, natural resource use and social well-being. Table 6-6 lists the communities within the vicinity of the proposed pipeline sections that comprise the Project.

Table 6-6: Communities and Aboriginal Groups in the Vicinity of the Project

Project Section	Municipality/Closest Community	Closest Distance (km) from Proposed Route
Komie North Section	Northern Rockies Regional Municipality (Fort Nelson, BC)	65
	Fort Liard Métis Local 67	70
	Fort Nelson Métis Society	65
	Fort Nelson First Nation (Fort Nelson, BC)	55
	Acho Dene Koe (Fort Liard, NT)	70
	Dene Tha' First Nation (Chateh, AB)	171
Townsoitoi Creek Section	Northern Rockies Regional Municipality (Fort Nelson, BC)	107
	Fort Nelson First Nation (Fort Nelson, BC)	94
	Fort Nelson Métis Society (Fort Nelson, BC)	107
	Dene Tha' First Nation (Chateh, AB)	66
	Mackenzie County (Rainbow Lake, AB)	32
	Prophet River First Nation (Prophet River, BC)	126
Pyramid Section	Mackenzie County (Rainbow Lake, AB)	63
	County of Northern Lights (Manning, AB)	168
	Doig River First Nation (Rose Prairie, BC)	130
	Dene Tha' First Nation (Chateh, AB)	103
	Beaver First Nation (Boyer, AB)	219
	Duncan's First Nation (Brownvale, AB)	221
	Region 6 Métis Nation of Alberta (Fort Vermillion, AB Métis Local 76)	236
	Paddle Prairie Métis Settlement (Paddle Prairie, AB)	117
Chinchaga Section	Clear Hills County (Worsley, AB)	94
	Dene Tha' First Nation (Chateh, AB)	151
	County of Northern Light (Manning, AB)	44
	Beaver First Nation (Boyer, AB)	176
	Duncan's First Nation (Brownvale, AB)	120
	Region 6 Métis Nation of Alberta (Fort Vermillion, AB Métis Local 76)	184
	Paddle Prairie Métis Settlement (Paddle Praire, AB)	68
	Horse Lake First Nation (Hythe, AB)	223

7.0 CONSULTATION AND ENGAGEMENT

7.1 Consultation Program Overview

The consultation program for the Project has been designed, and is being conducted, in accordance with the principles of TransCanada's long-standing community relations program. The goals of the consultation program are to:

- build, maintain and enhance a positive reputation for TransCanada, regardless of the status of the Project;
- ensure stakeholder issues and concerns are gathered, understood and integrated into project design and execution as appropriate; and
- ensure that concerns and issues with respect to environmental or socio-economic impacts are addressed as appropriate.

The consultation program will enable the development and maintenance of positive relationships with stakeholders by encouraging them to:

- learn about proposed project activities;
- be engaged in the consultation process; and
- be involved in addressing potential issues or concerns that might be identified through the consultation process.

Consultation activities and communication tools may include:

- face-to-face meetings;
- presentations to key stakeholder groups;
- public open houses;
- telephone conversations;
- development of an informational project webpage and project email address;
- distribution of informational stakeholder letters and fact sheets detailing various TransCanada programs and policies and project descriptions;
- distribution of applicable regulatory brochures; and
- advertisements and public notices.

The consultation program for the Project is being implemented in phases using open communication and participatory community involvement practices. The consultation phases are:

Phase I – Stakeholder Identification and Material Development

This phase of consultation focuses on the identification of possible interested/impacted stakeholders in the Project area and the development of high level consultation materials, including stakeholder letters, maps, and informational fact sheets, to be used for project notification purposes. The initial project information distribution list is developed in this stage and is updated regularly as additional stakeholders are identified.

Phase II – Stakeholder Notification

This phase focuses on the first wave of initial project notification to stakeholders identified in Phase I. This notification contains some high level details relating to the proposed Project, including proposed facility locations, and key Project-related activities, as well as information on how stakeholders can provide input into the Project planning and NEB regulatory review process.

Phase III – Ongoing Stakeholder Outreach and Regulatory Filings

This phase consists of ongoing stakeholder consultation and communication including the distribution of additional project information (mailouts), project advertising, telephone contact, face-to-face meetings, and informational open houses (as required). The purpose of this continued outreach is to keep stakeholders informed about the Project's progress, to continue to solicit feedback about the Project, and to identify and address issues. This phase culminates with the filing of an NEB Application.

Phase IV – Post Filing through Construction

This consultation phase will continue through the regulatory review process and, if approval is granted, until the completion of construction. Stakeholders will be informed of the NEB's decision and advised of any pre-construction and construction activities. During this phase, NGTL will respond to inquiries and emerging issues, resolve issues carried over from Phase III activities, and continue to communicate with all stakeholders. NGTL will update stakeholders regularly as project milestones are met and will seek their continued feedback and input. This phase will conclude with the completion of construction, at which point consultation activities will be transferred from the Project team to TransCanada's Community and Aboriginal Relations liaison and other staff within TransCanada's operating region. During this transition period, the objective will be to ensure ongoing stakeholder communication and issue resolution are maintained as required, as well as integration into TransCanada's IPA program during operations.

7.2 Stakeholders

TransCanada will consult and communicate with a broad range of stakeholders, including:

- landowners;
- land users (e.g., guides, outfitters, trappers);
- community members;
- municipal leaders and representatives (e.g. municipal districts, counties, rural municipalities, cities, towns, villages);
- provincial and federal elected officials;
- government agencies and representatives; and
- non-governmental organizations.

7.3 Consultation Activities Conducted To-Date

7.3.1 Early Public Notification

In developing the stakeholder engagement program for the Project, NGTL considered the development of a number of other NGTL projects in the region and the fact that many of these regional projects potentially interest/impact the same stakeholders and are expected to be applied for in a series of applications within the same year. As such, a common stakeholder list was developed and the Project notification and update materials feature included information on a number of distinct projects proposed within this region.

In keeping with TransCanada's commitment to open and timely consultation with affected stakeholders, stakeholder identification was undertaken and initial project information materials were developed in August 2010 in advance of the commencement of environmental field studies. This Project notification was sent to all potentially interested or affected Aboriginal and non-Aboriginal communities identified during Phase I of the stakeholder engagement plan. The following materials were sent to these stakeholders as part of this first phase of stakeholder notification**:**

- Project introduction letter;
- Northwest System Expansion projects fact sheet #1:
  - Project area map – outlining possible future projects;
  - high level overview of the projects which make up the "northwest system expansion" bundle of projects;
  - overview of route and site selection activities;
  - environmental considerations which will be considered as part of our applications;
  - overview of any noise and emissions considerations in association with the proposed projects;
  - Aboriginal engagement best practices;
  - public consultation philosophy; and
  - Project team contact information.
- National Energy Board – *A proposed pipeline or power line project – what you need to know;*
- TransCanada documents:
  - *Connecting with our Communities*;
  - *Aboriginal Relations*; and
  - *Your Safety, Our Integrity*.

7.3.2 Ongoing Stakeholder Outreach

In October 2010, NGTL developed more detailed project information brochures and distributed those via mail to all stakeholders identified through the initial planning, and early notification phases.

The Northwest System Expansion projects fact sheet #2 contained:

- an area map (with more detail shown on the proposed Horn River Mainline – Komie North Section pipeline) showing all seven projects;
- information on which NEB applications will be filed for which projects;
- detailed information on each project including:
  - legal land locations (start and end points where appropriate);
  - expected Maximum Allowable Operating Pressure;
  - expected facility length; and
  - detailed project schedule including estimated dates for activities like survey, stakeholder and Aboriginal engagement, environmental studies, regulatory submissions, construction start, in-service dates.
- additional information on:
  - route and site selection;
  - environmental considerations;
  - Aboriginal engagement;
  - public consultation;
  - traffic and noise;
  - equipment on site;
  - clean up and reclamation;
  - operations; and
  - emergency preparedness and response.

In November 2010, NGTL published public notices on the Project in local newspapers which included a Project map, details about the proposed projects, details on NGTL's intention to file a regulatory Application for the proposed projects, and contact information for those seeking more information. On November 25, 2010, NGTL held an informational project open house in Fort Nelson, BC, to share further information about the proposed area projects.

Approximately 30 community members attended the open house and attendee feedback forms indicated that the public appreciated the opportunity to learn more about the projects, to speak directly to project team members, and to have their questions addressed adequately. Common themes at this open house included local hiring practices and business opportunities, as well as TransCanada's Aboriginal engagement process.

In December 2010, NGTL developed and distributed a third mailout to stakeholders, updating them on the status of the proposed projects, including expected regulatory application dates.

Another update was developed and distributed in January 2011. On January 19, 2011, NGTL presented an update on the proposed Project to elected officials and staff of the Northern Rockies Regional Municipality (**NRRM**) in Fort Nelson. The discussion with the NRRM focused largely on Aboriginal engagement practices, practices related to the hiring of a prime contractor, and local hiring practices.

On March 1, 2011, NGTL mailed a letter to stakeholders informing them that the proposed Chinchaga Lateral Loop project, which was featured in the fact sheet mailed out in January, would be included in the Northwest Mainline Komie North Extension application.

NGTL intends to continue to inform, update, and engage potentially interested stakeholders up to and beyond the submission of a regulatory Application in the summer of 2011.

7.3.2.1 Federal and Provincial Governments

Beginning in August 2010, consultation was initiated with government officials who might be involved in the regulatory reviews, approvals or construction phases of the Project. Their inputs, issues and concerns will be taken into account during field assessments, and in the preparation of the environmental and socio-economic impact assessment for the Project.

Government departments that will be consulted on the project are listed in Tables 9-1 through 9-4 (refer to Section 9, Distribution Lists).

7.4 Aboriginal Engagement

7.4.1 Aboriginal Engagement Program Overview

The Aboriginal engagement program for the Project is designed to assist NGTL in understanding and addressing the interests and concerns of Aboriginal communities with respect to the Project and in particular to:

- identify Aboriginal communities that might have some interest or potential concerns with respect to the Project;
- provide ongoing project-related information;
- work with the communities to obtain local and traditional knowledge about the Project area;
- obtain socio-economic information with respect to the Project;
- identify potential concerns about the Project; and
- determine appropriate mitigation strategies.

Through information exchange and dialogue with individual communities, NGTL will work with the communities to address identified effects.

NGTL will focus on building relationships to address community protocols and expectations. It will also integrate local and traditional knowledge into the Project design and plans for mitigation, as appropriate and as available.

Where opportunities exist, NGTL will work with the communities to help build capacity, including project-related training and employment.

7.4.2 List of Aboriginal Communities

As part of its Aboriginal engagement program, NGTL will determine the proximity of the Project area to:

- reserves under the *Indian Act* and other trust lands;
- Métis settlements and communities; and
- areas identified by Aboriginal communities as their traditional land.

Based on the criteria provide above, as well as information received from Indian and Northern Affairs Canada, NGTL has developed an initial list of Aboriginal communities that may be affected by the Project and will be included in the Aboriginal engagement program.

Given the location of each pipeline section included in this Project Description, the potential effects on the Aboriginal communities will differ depending on the location of the Project relative to the communities' asserted traditional lands.

Based on the process above, the following Aboriginal communities have been engaged on the Project:

- Acho Dene Koe First Nation (**ADKFN**);
- Beaver First Nation (**BFN**);
- Dene Tha' First Nation (**DTFN**);
- Doig River First Nation (**DRFN**);
- Duncan's First Nation (**DFN**);
- Fort Liard Métis Society (**FLMS**);
- Fort Nelson First Nation (**FNFN**);
- Fort Nelson Métis Society (**FNMS**);
- Horse Lake First Nation (**HLFN**);
- Métis Nation of Alberta – Region 6 (**MNA - Region 6**);
- Paddle Prairie Métis Settlement (**PPMS**); and
- Prophet River First Nation (**PRFN**).

Figure 7-1 provides locations of the First Nations and Métis communities in proximity to the Project.

7.4.3 Engagement Activities Conducted To-Date

Initial engagement of Aboriginal communities began in the fall 2010. Based on public information available on asserted traditional lands in northeast BC and northwest Alberta, NGTL contacted potentially affected Aboriginal communities to advise them that the feasibility of a potential natural gas pipeline Project was being investigated and to determine the extent of their interest in the Project.

In addition, to support NGTL's Aboriginal engagement programs for this Project, the following communication tools have been utilized:

- information letters;
- project fact sheet with associated maps;
- project presentation materials;
- project activity schedules; and
- field visits.

These and other communication tools will be updated and distributed on an ongoing basis to Aboriginal communities to ensure that interested and affected communities have access to current information and project representatives, who can address any questions, issues and concerns that might arise.

For each identified Aboriginal community, the following engagement activities have been completed.

Acho Dene Koe First Nation

NGTL provided Project-related information in September 2010. An initial meeting was held in October 2010 with Chief and Council, sharing information related to NGTL's proposed scope of development and to determine the level of interest in the project and participating in the associated field studies.

NGTL continues to engage with ADKFN in regard to their participation in the Project and contributing to the overall socio-economic, environmental and traditional use studies for the Project.

Beaver First Nation

NGTL provided project-related information to the BFN in September 2010, for the purposes of sharing information and to determine BFN's interest and involvement with the ensuing Project development. NGTL met with the Chief of BFN in October 2010, in Calgary, Alberta, for the purposes of sharing information relating to the proposed Project and to determine the process for ongoing engagement. BFN community members have been participating in the fall and winter field studies with NGTL.

Dene Tha' First Nation

NGTL provided DTFN with project-related information in August 2010 and met with them in September 2010 to identify the process for ongoing engagement including the participation in environmental and traditional ecological knowledge studies.

NGTL and the DTFN Land Department continue to discuss a work-plan that will have DTFN contributing to the overall environmental, socio-economic and traditional use studies for the Project.

DTFN community representatives have been participating in the environmental field studies with NGTL's consultants and identifying Traditional Ecological Knowledge (**TEK**) during the biophysical studies. NGTL and DTFN are in communication with respect to the undertaking of the Traditional Land Use (**TLU**) studies related to the scope of the Project and the interests of the community.

Doig River First Nation

NGTL provided DRFN with Project-related information in October 2010 and met with Chief and Council to identify the process for ongoing engagement including the participation in environmental and TEK studies.

NGTL and the DRFN continue to discuss a work-plan that will have DRFN contributing to the overall environmental, socio-economic and traditional use studies for the Project.

Duncan's First Nation

NGTL provided DFN with Project-related information in September 2010 and met with Chief and Council to identify the process for ongoing engagement including the participation in environmental and TEK studies. NGTL and the DFN Land Department continue to discuss a work-plan that will have DFN contributing to the overall environmental, socio-economic and traditional use studies for the Project.

DFN community representatives have been participating in the environmental field studies with NGTL's consultants and identifying TEK during the biophysical studies. NGTL and DFN are in communication with respect to the undertaking of the TLU studies related to the scope of the Project and the interests of the community.

Fort Liard Métis Society

NGTL has been in communication and engaging with the FLMS leadership with respect to the Project since October 2010. NGTL representatives of Aboriginal Relations met with the FLMS President in November 2010 in Fort Liard at a meeting with ADKFN and other community representatives. NGTL was advised by FLMS that communication with FLMS can be accomplished through ADKFN as the community shares project information and communicates effectively within the

broader community. NGTL and the FLMS will continue to discuss this Project towards FLMS participating in and contributing to the overall socio-economic, environmental and traditional use studies for the Project.

Fort Nelson First Nation

NGTL has been in communication and engagement with the FNFN Chief and Council and Land Department staff of the FNFN since October 2008, with respect to the approved Horn River Mainline (Cabin Section) project. NGTL provided Project information on the Komie North Section and Townsoitoi Creek Section in September 2010. A subsequent meeting was held in October 2010 with Chief and Council, sharing information related to NGTL's proposed scope of development and associated activities. NGTL representatives of Aboriginal Relations and Environment Departments have been in communication with the Land Department to coordinate FNFN involvement in environmental and TLU field studies.

NGTL and the FNFN continue to discuss an overall work-plan for this Project that will have FNFN participating in and contributing to the overall socio-economic, environmental and traditional use studies for the Project.

Fort Nelson Métis Society

NGTL has been in communication and engagement with the FNMS and leadership with respect to the Horn River Mainline (Cabin Section) project since October 2008. NGTL provided project information to FNMS on the Komie North Section and Townsoitoi Creek Section in September 2010.

NGTL and the FNMS will continue to discuss this Project towards FNMS participating in and contributing to the overall socio-economic, environmental and traditional use studies for the Project.

Horse Lake First Nation

NGTL provided HLFN with Project-related information in February 2011, when the Chinchaga Section was added to the Project scope. At that time NGTL met with the HLFN Consultation Director to identify the process for ongoing engagement including the participation in environmental and TEK studies.

NGTL and the HLFN continue to discuss a work-plan that will have HLFN contributing to the overall environmental, socio-economic and traditional use studies for the Project.

Métis Nation of Alberta – Region 6

NGTL made the MNA – Region 6 aware of the proposed Project in September 2010, at which time project information was provided to the MNA – Region 6 community representatives. MNA – Region 6 expressed to NGTL an interest in participating in

Project activities and identified the Métis Local of Fort Vermillion as the community to engage and to participate in field studies.

Paddle Prairie Métis Settlement

NGTL provided PPMS with Project-related information in September 2010 and met with the leadership to identify the process for ongoing engagement, including the participation in environmental and TEK studies.

NGTL and the PPMS continue to engage with PPMS in their contribution to the overall environmental, socio-economic and traditional use studies for the Project.

PPMS community representatives have been participating in the environmental field studies with NGTL's consultants and identifying TEK during the biophysical studies. NGTL and PPMS are in communication with respect to the undertaking of the TLU studies related to the scope of the Project and the interests of the community.

Prophet River First Nation

NGTL has provided information and has been engaging with the Chief and Council and Land Department staff of the PRFN since October 2008, with respect to the approved Horn River Mainline (Cabin Section) project specifically. NGTL provided project information on the Townsoitoi Creek Section in September 2010. An initial meeting was held in October with Chief and Council, sharing information related to NGTL's proposed scope of development and associated activities. NGTL representatives of Aboriginal Relations and Environment Departments have been in communication with the Land Department to coordinate PRFN involvement in environmental and TLU field studies.

NGTL and the PRFN continue to discuss an overall work-plan for this Project that will have PRFN participating in and contributing to the overall socio-economic, environmental and traditional use studies for the Project.

Other Aboriginal Engagement Activities

In addition to the above First Nations, representatives of NGTL have initiated contact with certain federal and provincial government departments with Aboriginal consultation responsibilities. These departments are included in Table 9-1 for the federal government and Table 9-2 for the BC government (see Section 9, Distribution Lists).

The Aboriginal communities and organizations that are being provided with copies of this Project Description are listed in Table 9-5 of Section 9.
A map of the First Nation community and reserve lands, which are located within proximity to the proposed pipeline route, is provided in Figure 7-1.

NGTL and its consultants will continue to work with each Aboriginal community towards the identification of their concerns including the potential effects on current

use of land for traditional purposes and potential effects on sites of archaeological and/or historical importance.

7.5 Key Comments and Concerns

The Aboriginal communities that have been identified as participating in the Aboriginal Engagement Program for the Project have expressed similar comments related to the proposed Project. No specific concerns have been identified to date; rather, each community has expressed a desire to be involved in the identification and mitigation of potential effects to their current traditional use of the land and to sites of archaeological or historical importance. NGTL is discussing specific work plans with Aboriginal communities to enable them to participate in studies and field work. The information gathered will be discussed with the communities involved and will serve as a basis to design appropriate mitigation measures.

Each community expressed an interest in participating in the economic opportunities associated with the planning, construction and operations of the Project. In collaboration with communities, community open house events are being scheduled with each community to provide a forum for communication and information-sharing for economic interests such as contracting, training and employment opportunities with respect to NGTL activities.

NGTL is working directly with the Aboriginal community representatives to ensure that their comments and concerns are addressed in a timely and reasonable manner.

7.6 Overview of Information on Traditional Use

Limited detailed information of traditional use has been made available at this phase of Aboriginal engagement program. NGTL and the Aboriginal communities engaged on the Project are now working on specific work-plans for each community to gather information on the current use of traditional land, including biophysical studies and further field work. Meanwhile, the involvement to date of community members in field studies has proven to be very positive.

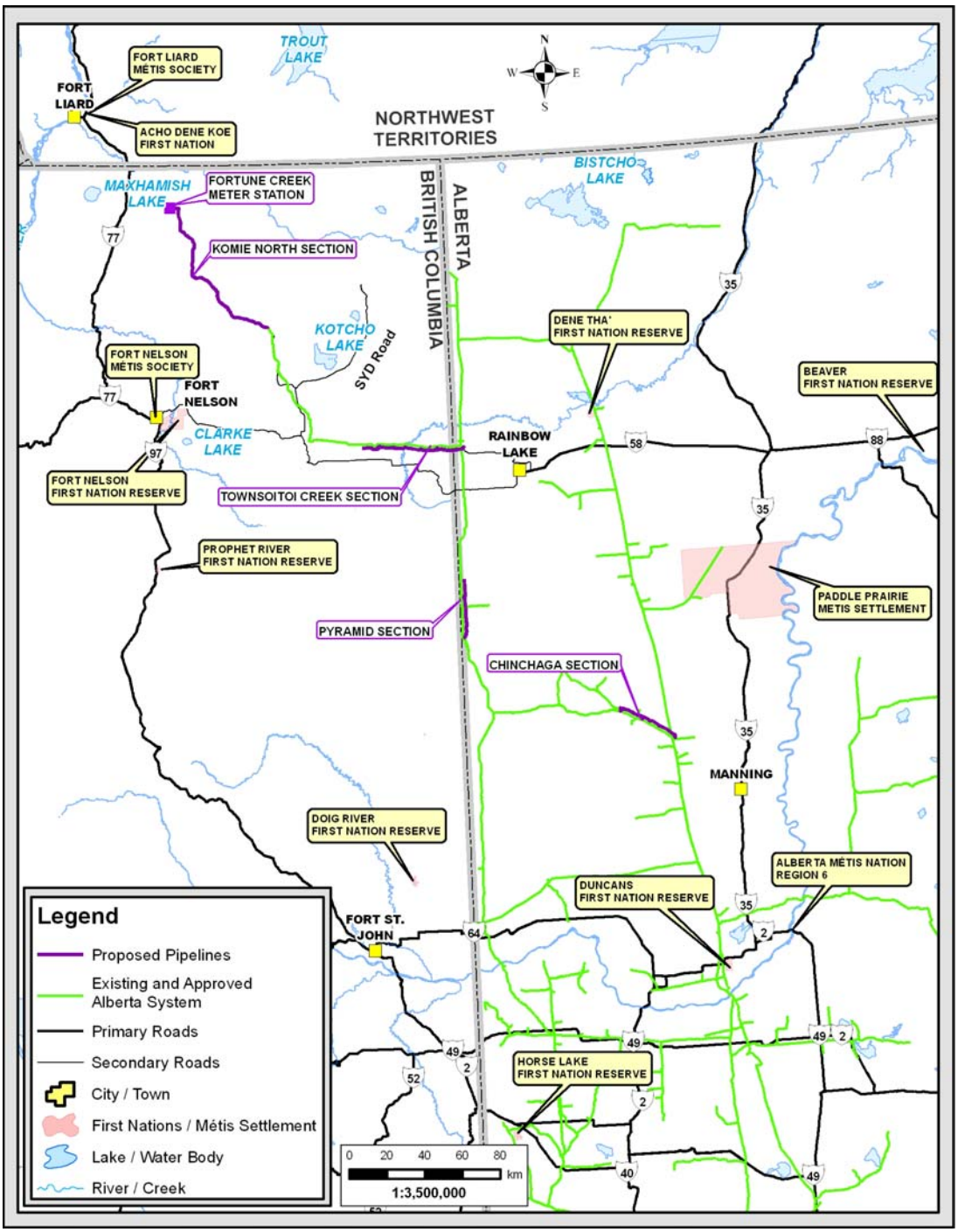
7.7 Overview of Ongoing and Proposed Engagement Activities and Schedule

NGTL is working with the Aboriginal communities to confirm the scope of work in which each community will be participating. Subject to the on the outcome of the field studies and related issues, NGTL will continue to engage and communicate with the Aboriginal communities on matters related to land use, the identification of potential adverse effects and mitigation measures.

In keeping with NGTL's Aboriginal Policy, the company will continue to engage the communities on matters related to economic opportunities and community investment programs.

These and other communication tools will be updated and distributed on an ongoing basis to Aboriginal communities to ensure that interested and affected communities have access to current information and Project representatives, who can address any questions, issues and concerns that might arise.

Figure 7-1: First Nations Communities and Reserve Lands in Proximity to the Project



8.0 REGULATORY AUTHORIZATIONS

8.1 Federal

In addition to a CPCN pursuant to section 52 of NEB Act for the construction and operation of the Project, various other federal approvals and authorizations will be required. A preliminary list is provided in Table 8-1. A final list will be developed in consultation with federal authorities, as design and construction planning for the project progresses.

Table 8-1: Preliminary List of Federal Regulatory Authorizations

Department	Authority	Approval
Fisheries and Oceans Canada	Section 35 (2) of the *Fisheries Act*	As required, authorization for open cut contingency crossing techniques for horizontal directionally drilled and certain isolated pipeline watercourse crossings. As required, notifications for watercourse crossings that comply with DFO Operational Statements.
Transport Canada	Section 108 of *NEB Act*	Approval to install a pipeline along, or under, navigable waters.
	Section 5 (1) of the *Navigable Waters Protection Act*	If required, approval to install a permanent access road crossing structure on, or across, navigable water.

8.2 Provincial

Various authorizations under provincial legislation will be required to undertake activities ancillary to, but necessary for, the construction and operation of the proposed Project.

Preliminary lists of Alberta and BC regulatory authorizations are provided in Tables 8-2 and 8-3. Final lists will be developed in consultation with the provincial authorities, as project design and construction planning progresses.

Table 8-2: Preliminary List of BC Regulatory Authorizations

Department	Authority	Approval
Ministry of Natural Resources Operations, Integrated Land Management Bureau	*Land Act*	Section 10 permit and statutory ROW on Crown land.
Ministry of Environment, Water Stewardship Division	*Water Act*	Section 8 approval for short-term use of water. Section 9 approval for modification of a watercourse channel.
Ministry of Forests and Range	*Forest Act*	Master license-to-cut under Section 51.
	Forest Act and *Forest Practices Code of British Columbia Act*	Use of non-status roads and trails.
	Forest Practices Code of British Columbia Act and *Forest Fire Prevention and Suppression Regulations*	Approval from the local Forest District of a fire preparedness plan for construction activities between April 1 and October 31.
Ministry of Tourism, Culture and the Arts	*Heritage Conservation Act*	Section 14 permits for heritage resource investigation.
Ministry of Transportation and Infrastructure	*Highway Act*	Road crossing agreements.

Table 8-3: Preliminary List of Alberta Regulatory Authorizations

Department	Authority	Approval
Alberta Culture and Community Spirit	*Historical Resources Act*	Historical resource clearances.
Alberta Environment	*Water Act Regulations*	For pipeline watercourse crossings, notification under the *Alberta Code of Practice for Pipelines and Telecommunications Lines Crossing a Water body.*
		For wetland crossings by the pipeline, notification under the *Alberta Code of Practice for Pipelines and Telecommunications Lines Crossing a Water body.*
		As required, notification under the *Alberta Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines.*
	Environmental Protection and Enhancement Act	As required, notification under the *Alberta Code of Practice for the Release of Hydrostatic Test Water from Hydrostatic Testing of Petroleum Liquid and Gas Pipelines.*
Alberta Sustainable Resources	*Public Lands Act*	Disposition application, including an environmental field report, for pipeline ROW and access roads enabling construction on Crown land.

8.3 Municipal Approvals

NGTL will require a variety of permits and authorizations from municipal and other local authorities as well as from private third party utilities, railway and pipeline companies. These approvals will be confirmed as Project planning and design progress. Typical municipal and other local government approvals might include:

- development and building permits for the metering facilities;
- electrical permits for the metering facilities;
- access road permits;
- permissions to cross county and regional district roads; and
- water use.

9.0 DISTRIBUTION LISTS

The initial distribution lists for this document are provided in this section.

The lists of government department and agency recipients were developed based on publicly available information and the collective experience of NGTL and its environmental consultants (see Tables 9-1 to 9-4).

An initial list of Aboriginal communities and organizations is provided in Table 9-5. This list was developed through:

- NGTL's existing land-based and Aboriginal relations data;
- NGTL's ongoing relationships with Aboriginal communities and organizations that allow it to expand its outreach and build relationships with other communities and organizations;
- preliminary discussions with Indian and Northern Affairs Canada; and
- publicly available information.

Federal Authorities

Table 9-1: Federal Government Recipients

Department	Contact Information
Environment Canada	Environmental Assessment Officer – Environmental Assessment and Marine Programs 401 Burrard St. Vancouver, BC V6C 3S5
	Stewardship Coordinator – Conservation Service Delivery RR1 5421 Robertson Rd. Delta, BC V4K 3N2
	Environmental Assessment Officer – Canadian Wildlife Service Ecosystem Conservation RR1 5421 Robertson Rd. Delta, BC V4K 3N2
	Consultation and Outreach Officer – Canadian Wildlife Service RR1 5421 Robertson Rd. Delta, BC V4K 3N2
Fisheries and Oceans Canada	Senior Habitat Biologist – BC Interior North: Peace-Liard 3690 Massay Dr. Prince George, BC V2N 2S8
	Fish Habitat Biologist – Peace River District Office 9001 94 St. Peace River, AB T8S 1G9

Table 9-1: Federal Government Recipients

	Senior Habitat Biologist – Peace River District Office 9001 94 St. Peace River, AB T8S 1G9
	Hydrological Engineer Environmental Assessment and Major Projects Unit 200, 401 Burrard St. Vancouver, BC V6C 3S4
	Team Leader Environmental Assessment and Major Projects Unit 200, 401 Burrard St. Vancouver, BC V6C 3S4
Indian and Northern Affairs	Environment and Natural Resources 600, 1138 Mellville St. Vancouver, BC V6E 4S3
Natural Resources Canada	Environmental Assessment Information Manager – Environmental Assessment Group 580 Booth St, 3rd Floor, Room A5-2 Ottawa, ON K1A 0E4
	Major Projects Management Office 155 Queen Street, 2nd Floor Ottawa, ON K1A 0E4
Transport Canada	Senior Environmental Officer – Environmental Services 800 Burrard St. Vancouver, BC V6Z 2J8
	Environmental Officer – Environmental Services 800 Burrard St. Vancouver, BC V6Z 2J8
	Navigable Waters Protection Officer 800 Burrard St. Vancouver, BC V6Z 2J8

Provincial Authorities

Table 9-2: Alberta Government Recipients

Department	Contact Information
Alberta Environment	Water Technologist – Water Management, Peace River District 2nd Floor Provincial Building, 9621 - 96 Avenue Peace River, AB T8S 1T4

Table 9-2: Alberta Government Recipients

Department	Contact Information
	Water Engineer, Water Management, Peace River District 2nd Floor Provincial Building, 9621 - 96 Avenue Peace River, AB T8S 1T4
Alberta Sustainable Resource Development	Forest Officer Rainbow Lake Ranger Station Box 57, 50A Imperial Drive Rainbow Lake, AB T0H 2Y0
	Area Wildlife Biologist Provincial Building, 9621 – 96 Avenue Peace River, AB T8S 1T4
	Senior Resource Management Advisor, Peace/Upper Hay Areas, Aboriginal Consultation 3rd Floor, Provincial Building, 9621 – 96 Avenue Peace River, AB T8S 1T4
	Operations Unit Head- Lands Program Box 749, 400 - 2 Street S.W. Manning, AB T0H 2M0
	Operations Unit Head, Lands Program Box 57, 50A Imperial Drive Rainbow Lake, AB T0H 2Y0
	Lands and Range Program Manager Provincial Building, 9621 – 96 Avenue Peace River, AB T8S 1T4
	Lands Program Manager, Lands- Forest Operations Provincial Building, Box 128, 10106 - 100 Avenue High Level, AB T0H 1Z0
	Resource Management Advisor, Peace Area, Aboriginal Consultation Box 1149, 2nd Floor Provincial Building 10209 - 109 Street Fairview, AB T0H 1L0

Table 9-3: BC Government Recipients

Department	Contact Information
Ministry of Natural Resource Operations	Senior Land Officer Regional Client Services Division 370, 10003 110 Ave Fort St. John, BC V1J 6M7
	Northeast Manager First Nations Initiatives Division 370, 10003 110 Ave Fort St. John, BC VIJ 6M7
Ministry of Natural Resource Operations (formerly Ministry of Environment)	Ecosystem Section Head Environmental Stewardship 400, 10003 110 Ave Fort St. John, BC V1J 6M7
	Fish Biologist 400, 10003 110 Ave Fort St. John, BC V1J 6M7
	Section Head, Water Stewardship, Water Management Suite 325, 1011 4th Avenue Prince George, BC V2L 3L9
Ministry of Natural Resource Operations (formerly Ministry of Forests and Range)	Operations Manager RR#1, Mile 301 Alaska Highway Fort Nelson, BC V0C 1R0
	Revenue Specialist RR#1, Mile 301 Alaska Highway Fort Nelson, BC V0C 1R0
	Resource Technologist - Tenures RR#1, Mile 301 Alaska Highway Fort Nelson, BC V0C 1R0
Ministry of Forests, Lands and Natural Resource Operations (formerly Ministry of Energy)	Mineral Title Inspector 2nd Floor, 441 Columbia Street Kamloops, BC V2C 2T3
BC Oil and Gas Commission	Natural Resource Officer 100, 1003 – 110th Avenue Fort St. John, BC V1J 6M7
Ministry of Tourism	Recreation, Sites and Trails Branch PO Box 9811 Stn. Prov. Gov Victoria, BC V8W 9W1

Other Authorities

Table 9-4: Other Alberta and BC Authorities

Department	Contact Information
Northern Rockies Regional District	Town Square 5319 - 50th Avenue Fort Nelson, BC V0C 1R0 Attn: Jack Stevenson
Town of Rainbow Lake	Box 149 Rainbow Lake, AB T0H 2Y0 Attn: Rosemary Offrey
MD of Northern Lights	#600 – 7th Avenue, Box 10 Manning, AB T0H 2M0 Attn: Theresa Van Oort
Clearhills County	Box 240 Worsley, AB T0H 3W0 Attn: Allan Rowe
Town of Manning	Box 125 Manning, AB T0H 2M0 Attn: John Broderick
Mackenzie County	4511 – 46th Avenue Box 640 Fort Vermillion, AB T0H 1N0 Attn: Lisa Wardley

Aboriginal Communities

Table 9-5: Alberta and BC Aboriginal Community Recipients

Aboriginal Community	Contact Information	Key Contacts
Acho Dene Koe First Nation	General Delivery Fort Liard, NT X0G 0A0 Tel: 867 770 4141 Fax: 867 770 4144	Chief Steven Kotchea
Beaver First Nation	Box 270 High Level, AB T0H 1Z1	Chief Henry Kidney-Francis
Dene Tha' First Nation	P.O. Box 120 Chateh, AB T0H 0S0 Tel: 780-321-3775 Fax: 780-321-3886	Chief James Ahnassay Land Department - Baptiste Metchooyeah
Doig River First Nation	Box 56 Rose Prairie, BC V0C 2H0 Tel: (250) 827-3776 Fax: (250) 827-3778	Chief Norman Davis
Duncan's First Nation	PO Box 148, Brownvale, AB T0H 0L0 Tel : (780)597-3777 Fax : (780) 597-3920	Chief Don Testawich

Table 9-5: Alberta and BC Aboriginal Community Recipients

Fort Liard Métis Society	P.O. Box 181 Fort Liard, NT X0G 0A0 Tel: (867)770-4474	President Ernie Mcleod
Fort Nelson First Nation	Mile 295, Alaska Highway, RR#1, Fort Nelson, B.C., V0C 1R0	Lana Lowe, Director Land Department
Fort Nelson Métis Society	Box 1020 Fort Nelson, BC V0C 1R0 Phone: (250) 774-3813	President Eric Ashdown
Horse Lake First Nation	18166 102 Ave. Edmonton, AB T5S 1S7 Tel: (780) 930-2011 Fax: (780) 930-2012	Audrey Horseman Consultation and Lands Director
Métis Nation of Alberta – Region 6	9621 90 Avenue Peace River, AB T8S 1G8 Tel: (780) 624-4219 Fax: (780) 624-3477	President Brandy Mitchell
Paddle Prairie Métis Settlement	Box 58 Paddle Prairie, AB T0H 2W0 Tel : (780) 981-3737 Fax: (780) 981-3737	Alden Armstrong, Chairman
Prophet River First Nation	Box 3250 Fort Nelson , BC V0C 1R0 Tel : (250) 773-6555 Fax : (250) 773-6556	Chief Lynette Tsakoza

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