Government of Yukon – Energy, Mines and Resources
Forest Management branch

Liard River Burn Timber Harvest Plan

Watson Lake Annual Limit Region

Date Prepared:
8/3/2015

Approved by
Kirk Price, A/Director
Forest Management Branch

2015-8-5
Date

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1 Executive Summary

This Timber Harvest Plan (THP) has been prepared to meet the requirements of the *Forest Resources Act (FRA)* and associated *Forest Resources Regulations (FRR).* Any comments received during the review of this plan were addressed in this final version of the THP.

Under the legislation, a THP is required prior to the issuance of any timber harvesting licence or forest resources permit that authorizes harvesting in an amount greater than 25m^3 (FRA, Section 29(4)(d)(ii).).

The Liard River Burn THP area was identified by a commercial fuel wood harvester based out of Watson Lake. This area, which burned in the summer of 2012, is located south of the Liard River and is approximately 9 kilometres away from the town of Upper Liard. This area was identified as having good volumes of merchantable timber suitable for use as fuel wood, with existing access. This THP covers an area of approximately 80 hectares and the activities proposed in this THP include the harvest of dead and downed timber for use as fuel wood.

The objectives of this THP are to set the framework for commercial fuel wood harvesting activities within the designated area, provide economic opportunities for local commercial fuel wood operators, and support the supply of firewood to the communities of Upper Liard and Watson Lake.

2 Background and Purpose

In 2011 the Watson Lake Fuelwood Timber Harvest Plan (THP) was approved. This plan identified four areas, (two close to the Town of Watson Lake and two near the Nahanni Range Road) where clients could submit applications for commercial fuel wood harvesting licences.

Since 2011, the Watson Lake Fuelwood THP had seen a lot of harvesting activity. The majority of merchantable fuel wood in the operating units in close proximity to Watson Lake has now been harvested, making it difficult to support economically viable commercial fuel wood harvesting operations within this THP.

Durocher Firewood & Logging, a commercial fuel wood harvesting business previously operating in the Watson Lake Fuelwood THP area identified the Liard River Burn area as an excellent location to support commercial fuel wood harvesting activities.

The purpose of this THP is to provide new harvesting opportunities for commercial fuel wood harvesters, support economic activity, and provide a supply of fuel wood to the towns of Upper Liard and Watson Lake.

2.1 Introduction

This THP lies within the Liard Basin Ecoregion within the Boreal Cordillera Ecozone. This area is dominated by extensive boreal forest and characterized by moderate precipitation and relatively long, warm summers which have resulted in good forest growth (Yukon Ecoregions Working Group, 2004).

The climate in this region is generally cool with moderate amounts of precipitation. Mean annual temperatures are close to -4^0C. There is a large variation between winter and summer temperatures with cold winter temperatures averaging -25^0C and summer highs getting close to 30^0C (Yukon Ecoregions Working Group, 2004).

The location of this THP is approximately 9 km southwest of the town of Upper Liard. It is located immediately south of the Liard River and covers an area of approximately 80 hectares.

2.1.1 Forest Stand Composition

There are two distinct stands within this THP which have significantly different stand composition characteristics. There is a plateau with a distinct ridge which bisects the two areas by a ridge running East to West with a short steep slope (~65%) just south of the existing access road.

The northern portion (LRB-1) of the THP is primarily dominated by white spruce (*Picea glauca)* with a minor component of live lodgepole pine (*Pinus contorta*). White birch (*Betula papyrifera*)

and poplar (*Populus sp.*) can be found to the north of the THP boundary as the topography gradually slopes down towards the Liard River.

The southern portion (LRB-2) of the THP is located on top of a broad, relatively flat, plateau. It is almost exclusively dominated by lodgepole pine. In general, very few trees within either portion of this THP survived the forest fire of 2012. However, the pine dominated plateau area contains scattered patches of lodgepole pine which survived.

The THP boundary has been designed to exclude adjacent live forest stands outside the fire boundary. Further stand information is provided in section 4 of this THP and detailed site-specific stand information will be provided in the site plan of any commercial cutting permit authorized under this THP.

2.1.2 Forest Health

There are no significant threats to forest health in the Watson Lake area at this time and no forest health concerns were identified during the evaluation of this THP. As this THP is comprised primarily of fire-killed white spruce and lodgepole pine it is unlikely that there will be any significant forest health concerns in the near future.

The Forest Management branch (FMB) releases an annual forest health report which summarizes the current state of forest health in Yukon. Copies of the Forest Management branch's most recent Forest Health Report can be found on FMB's web site at: http://www.emr.gov.yk.ca/forestry/foresthealth.html.

2.1.3 Objectives and Location of Timber Harvesting

There is a strong demand for fuel wood in the Watson Lake area, and many residents use it to heat their homes throughout the year. The main objective of timber harvesting within this THP is to create harvesting opportunities that will increase the availability of fuel wood to local residents and businesses.

Specific locations for timber harvesting within this THP will be proposed by clients who submit an application for a commercial harvesting licence or cutting authority. These applications and the proposed harvesting activities and locations for harvesting will be evaluated by the Forest Management branch (FMB). FMB will either authorize the proposed activities subject to terms and conditions, vary the proposal in consultation with the client, or reject the application.

Timber harvesting under this plan will be limited to the harvest of dead and downed material. Targeted green tree harvesting will not be authorized under this THP, although there may be some green tree harvesting that occurs incidentally to the development of trails. The objective will be to utilize the majority of merchantable, standing dead, and downed stems within this burn. Utilization standards will be outlined in the terms of any cutting permits issued under this THP.

The process for issuing harvesting licences and the factors influencing the decision to issue a harvesting licence and authorize certain activities within this THP are discussed in greater detail in Section 4 of this THP.

Areas within this THP that have significant ecological value such as riparian areas or areas containing significant wildlife features will be protected from harvesting disturbance in accordance with the Forest Management branch's operational standards and guidelines. These values and features, and the mitigations or reserve areas created to protect them will be included in the site plan of any commercial cutting permit. These factors will also be taken into consideration when deciding on the potential issuance of any Forest Resource Permits (FRPs) for personal use.

2.1.4 Personal Use Harvesting

Currently, no personal use fuel wood (PUFW) harvest areas have been established within this THP area. PUFW areas may be established in the future to meet the needs of local residents.

3 Forest Resource Management Planning Considerations

At the time of writing this THP a Forest Resource Management Plan (FRMP) has not been established in the Watson Lake Annual Limit Area to direct forest resource management strategies. In the absence of an FRMP, a THP must take into account various sustainable forest management principles as required by the ***Forest Resources Act*** and associated Forest Resources Regulations (FRR, Section 5).

3.1.1 Sustainability and Integrated Resource Management

Sustainable forest management has been defined by the Canadian Forest Service as, "Management that maintains and enhances the long-term health of forest ecosystems for the benefit of all living things while providing environmental, economic, social and cultural opportunities for present and future generations." (Canadian Forest Service, 2001)

This THP provides economic opportunities for fuel wood harvesting while affecting a relatively small burned area within the extensive boreal forest of the Southeast Yukon. Licenced timber harvesting activities permitted within this THP are limited to the removal of dead and downed timber. These activities will be regulated in such a way as to ensure there will be minimal long-term impact on the quality and function of the ecosystems in this area.

It is often not possible to identify all of the values within a given area during the THP planning process. Many values such as wildlife features are dynamic in nature or difficult to identify during the planning stages of a timber harvest plan. The Forest Management branch has standards and guidelines to direct the actions of operators when additional values are identified during harvesting operations. All of the standards and guidelines that apply to forest operations

in the Yukon and within this THP can be found on the Forest Management branch website at: http://www.emr.gov.yk.ca/forestry/operational_standards.html.

3.1.2 Consultation with First Nations

This THP is situated within the asserted traditional territory of the Liard First Nation, the Ross River Dena Council and the Kaska Dena Council. Letters were sent to the affected First Nations notifying them of the intent to develop this THP, plus notification of the draft THP was sent. In addition affected First Nations will be notified of any harvesting licence applications within this THP and provided no less than 30 days to make representations to the Director of the Forest Management branch on each application (FRA, Section 18).

No concerns were brought forward to the Forest Management branch during the planning and consultation process of drafting this THP.

3.1.3 Economics of Timber Supply

Commercial fuel wood harvesting is an important source of income for some people in the Town of Watson Lake and there is a consistent need for fuel wood within the community.

As established THP areas such as the Watson Lake Fuel Wood Timber Harvest Plan become depleted of their fuel wood, commercial operators in Watson Lake have begun to look for alternative areas for harvesting. Some operators have moved their operations into British Columbia where there is a larger and more readily available source of fuel wood in a burned area approximately 18 kilometres south of the Alaska Highway on Highway 37.

This THP was proposed by a client looking for an alternative harvest area within Yukon. The plan has been written to support fuel wood harvesting and economic activity within Yukon. Due to the small scale of this THP the overall economics and timber supply of southeast Yukon will not be significantly affected by the activities carried out under this plan.

3.1.4 Soil Conservation and Hydrology

Protecting the integrity of soils and their hydrological function is essential to maintaining a healthy and productive forest ecosystem. The Forest Management branch's Soil Conservation Standards and Guidelines have been established to conserve soil productivity and hydrological function during harvesting operations. All activities carried out under this THP must adhere to these standards. These standards can be found on the Forest Management branch web site at: http://www.emr.gov.yk.ca/forestry/operational_standards.html.

Site specific soils information and protection measures will be outlined in the site plan of any commercial cutting permits issued within this timber harvest plan. The Soil Conservation Standards and Guidelines will determine the season of harvest based on the hazard ratings of the soil type within this area. The Site Plan will clearly state mitigation strategies for the protection of soil properties.

3.1.5 Wildlife and Biodiversity

The primary wildlife species found in the vicinity of this THP include woodland caribou, moose, wolves, marten, beaver, muskrat, and bald eagles.

Albert (Cormier) Creek has also been identified as high quality habitat for beaver and muskrat. This area is over a kilometre south of the THP boundary and there will be no impact on this key habitat area.

There will be a minimum of 10% overall retention of standing dead trees and course woody debris throughout this timber harvest plan. This retention is designed to maintain wildlife habitat features for cavity nesters and other species.

All activities within this THP will follow the Forest Management branch's established Wildlife Features Standards and Guidelines. These standards provide direction in the event of a significant wildlife feature being encountered during harvest operations. These standards can be found on the Forest Management branch website at: http://www.emr.gov.yk.ca/forestry/operational_standards.html.

3.1.6 Riparian Management and Fish Habitat

A portion of this THP is situated near the floodplains of the Liard River, within the lowland ecosystem. As per FMB standards the maximum riparian reserves will be retained along the Liard River. The THP boundary has been designed to exclude most riparian features from the operating area and provide external buffers that meet or exceed the Forest Management branch's operational standards and guidelines.

Albert Creek (Cormier Creek) lies approximately 1.5 km south of this THP. This area is excellent habitat for beaver and muskrat, and portions of it are potentially fish bearing. The significant distance between the creek and the boundary of this THP ensures that harvesting activities will not adversely impact the Albert Creek system.

Copies of the Riparian and Wetland Standards and Guidelines that have directed the planning process for this timber harvest plan can be found on the Forest Management branch website at: http://www.emr.gov.yk.ca/forestry/operational_standards.html.

3.1.7 Heritage Resources

A heritage resource overview assessment has been conducted for this area by the Heritage Resources Unit of the Department of Tourism and Culture. As per the Historic and Archaeological Resources Standards and Guidelines, any area mapped as high potential for historic resources, if activities are to occur that could have impact, then an impact assessment will be carried out prior to activities proceeding.

The remaining area covered by this THP has low potential to contain heritage resources. If any heritage resources are encountered during harvesting operations the Forest Management branch's Historic and Archaeological Resources Standards and Guidelines will provide direction to protect these resources. A copy of these standards and guidelines which will apply to this THP area can be found on the Forest Management branch's website at: http://www.emr.gov.yk.ca/forestry/operational_standards.html.

3.2 Fuel Wood Harvesting Overview and Methodology

3.2.1 Licencing Process for Fuel Wood Harvesting

Prior to commencing commercial fuel wood harvesting activities operators must obtain a fuel wood licence (FWL) and cutting permit from the Forest Management branch (FRA, Section 24(e)) that meets the requirements of the *Forest Resources Act* and the objectives of this timber harvest plan. The cutting permit will have terms and conditions, and a site plan which must be followed during harvesting operations.

The site plan will outline the specific management plan to be followed for harvesting and will contain detailed information on the timber resources in the area and the harvesting methods to be applied. Site plan requirements are defined in the *Forest Resources Act* (FRR, Section 22).

Affected First Nations and the public will be notified of licence applications and provided no less than a 30 day period to make representations to the Director of the Forest Management branch on each application (*FRA*, Section 18).

3.2.2 Estimated Fuel Wood Volume Available for Harvest

During the planning process of developing this THP the Forest Management branch conducted a low intensity timber cruise to determine the approximate amount of dead and downed fuel wood available for harvest within this area. Volumes provided here may vary significantly from actual volumes found within this THP. Table 1 provides volume estimates for this THP area.

Operating Unit #	Total Area (ha)	Approx. Gross Fuel Wood Volume per Hectare (m^3/ha)	Total Approx. Gross Fuel Wood(m^3)	Harvest Method
LRB-1	~52	~110 m3/Ha	5,720 m^3	Ground based, dry or frozen - salvage
LRB-2	~28	~ 65 m^3/Ha	1,820 m^3	Ground based, dry or frozen - salvage

Table 1: Approximate fuel wood volumes found within the Liard River Burn THP.

Total gross fuel wood volumes provided are a rough approximation. Merchantable volumes harvested from the operating area will be significantly lower than the gross volume provided here. Per hectare merchantable volume varies widely throughout this THP and a significant amount of the gross volume may not be merchantable.

3.2.3 Timber Harvesting Methods

Salvage harvesting operations will focus on harvesting merchantable standing dead trees to be utilized as fuel wood.

Typically harvesting will be accomplished by hand-falling and bucking trees with a chainsaw and then skidding log lengths to the edge of the block with an ATV, snow machine or skidder for processing and removal from site. Other harvesting methods may be proposed in the site plan provided by the applicant and will be considered on an individual basis.

Considerations of other harvesting methodologies will be based on how the proposed activities meet the following:

- The requirements and intent of this THP.
- The requirements of the *Forest Resources Act* and *Forest Resources Regulations.*
- The requirements of the Forest Management branch's operational standards and guidelines.

3.2.4 Schedule for Undertaking Timber Harvesting

Detailed schedules for timber harvesting will be provided in the site plan of each cutting permit issued within this THP.
The timing of harvesting operations may be restricted by factors related to soil conservation, wildlife values, heritage values, and traditional activities. All harvesting schedules will be in compliance with the Forest Management branch's operational standards and guidelines.

3.3 Access Management

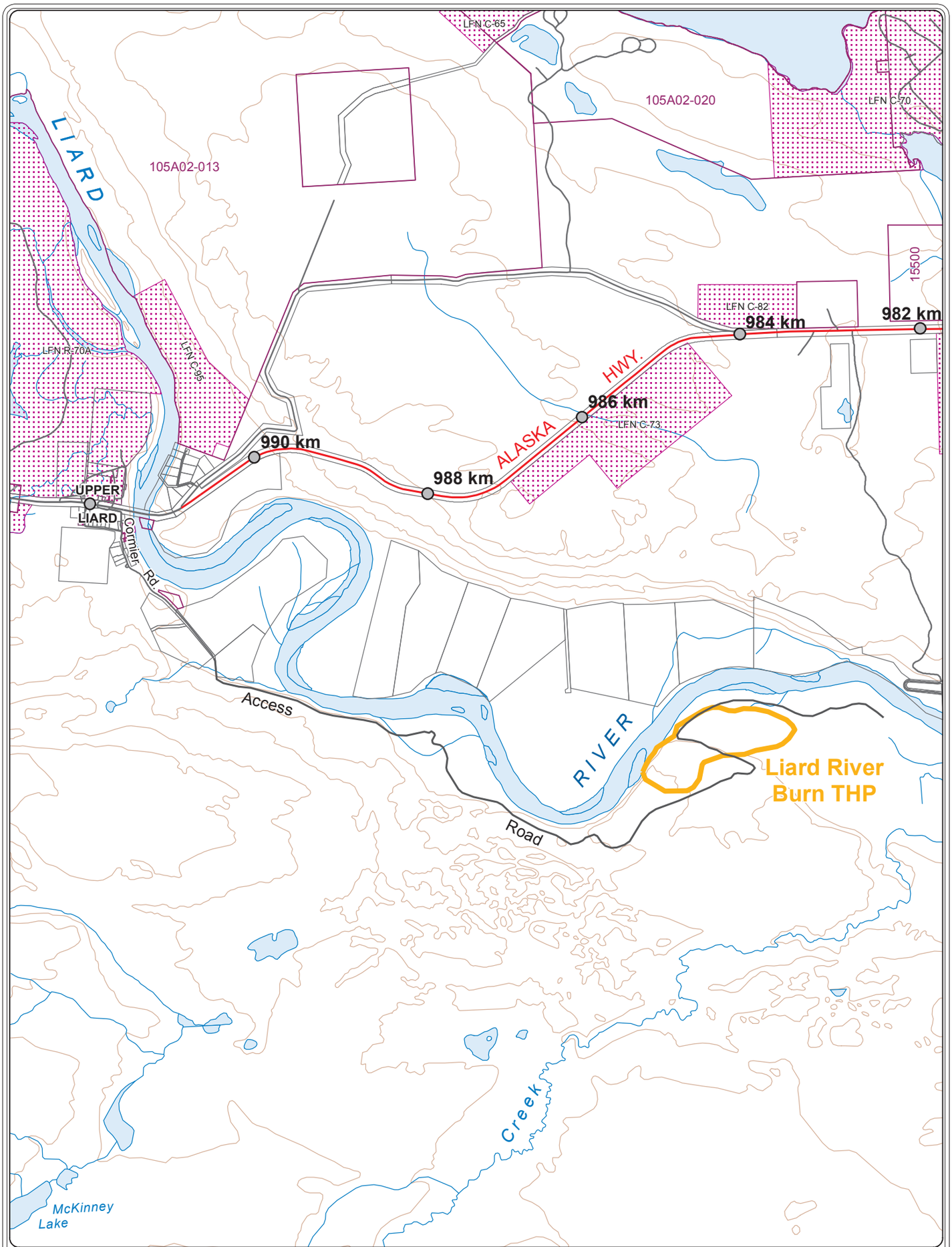
3.3.1 Access Considerations

This THP is accessed by the existing Upper Liard Road, on the south side of the Alaska Highway, just 0.5 km west of the Liard River Bridge. The Cormier Creek mainline road starts at the end of this road. It is an old road that loosely follows the Liard River. The road is narrow, with some soft spots, some rutted areas and is partially overgrown. This road will require upgrading and may only be used during dry conditions and/or frozen.

Where existing roads require upgrading a Land Use Permit may be required, and Highways and Public Works will determine if a "work within the right-of-way" permit is necessary. The terms and conditions of the upgrades, maintenance and deactivation would be specified in the terms of these permits. Road construction or upgrading requires a submission to YESAB prior to issuance of any permits.

4 THP Maps

4.1 Maps



Liard River Burn Overview
Timber Harvest Plan Area

Tintina District
Watson Lake Annual Limit Region

For more timber harvest information
Web: www.emr.gov.yk.ca/forestry
Phone: 1.867.456.3999

Date: April 27, 2015

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Metres

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Forestry spatial data managed and maintained by the Forest Management Branch, Yukon Government. All other spatial data provided by Geomatics Yukon.

Yukon
Energy, Mines and Resources
Forest Management Branch

Project Specific Features

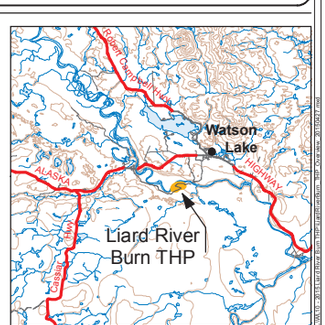
- Timber Harvest Plan Area

First Nation Administration

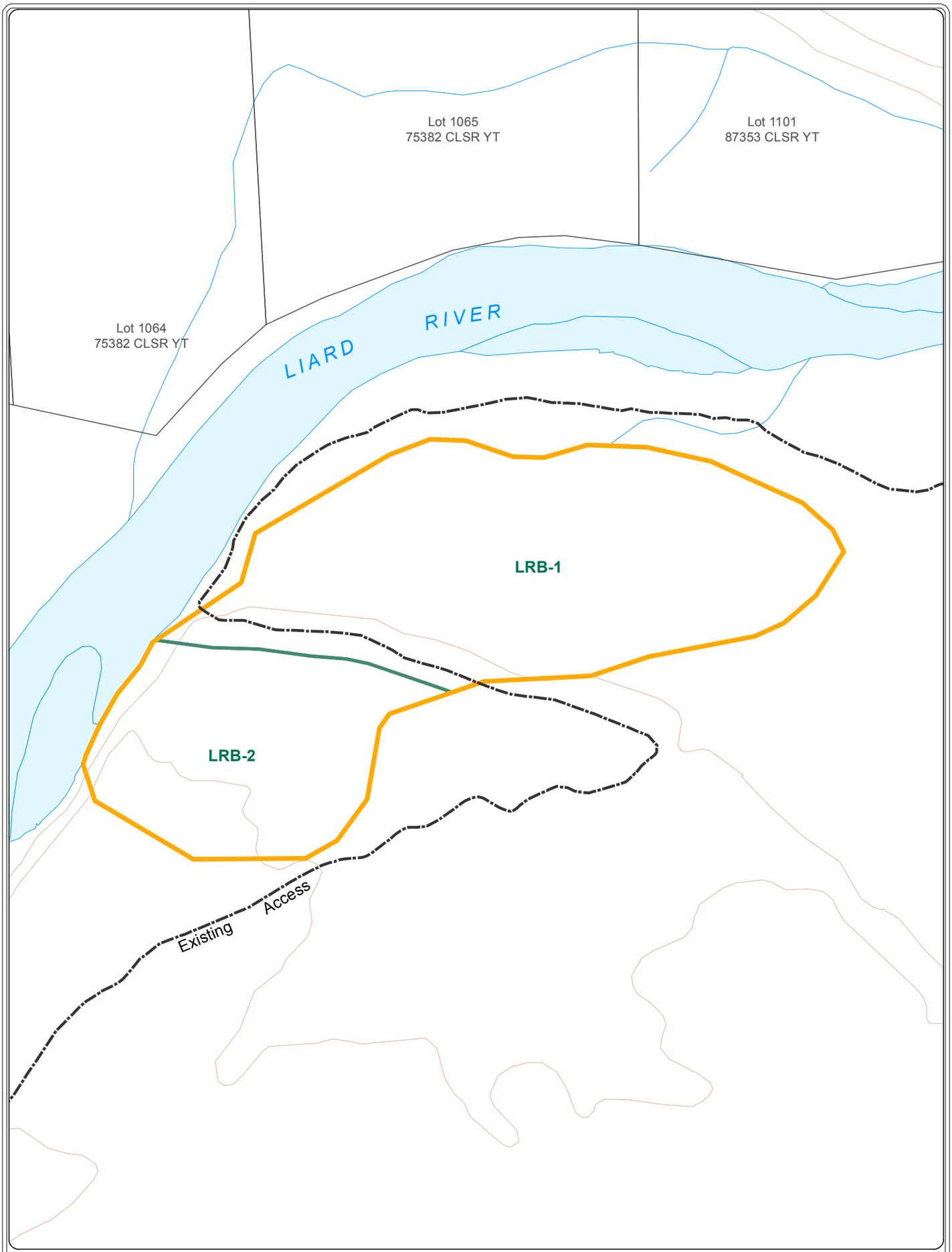
- A: Surface and Subsurface Rights
- B: Surface Rights
- FS: Fee Simple
- Unsurveyed FN Settlement Lands
- Unsurveyed Interim Protected FN Lands

Land Administration

- Land Dispositions
- Surveyed Easements
- Surveyed Land Parcels



- Highway
- Primary Roads
- Local Roads
- Resource / Recreation
- Alley / Service Lane
- Winter



Liard River Burn
Timber Harvest Plan Area

Tintina District
Watson Lake Annual Limit Region

For more timber harvest information
Web: www.emr.gov.yk.ca/forestry
Phone: 1.867.456.3999

Date: July 27, 2015

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Metres

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NAD 83

Forestry spatial data managed and maintained by the Forest Management Branch, Yukon Government. All other spatial data provided by Geomatics Yukon.

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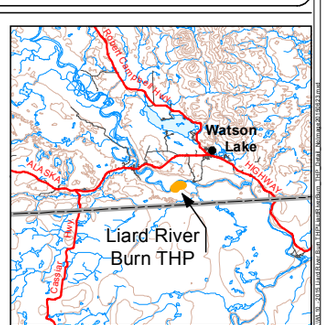
Forest Management Branch

Project Specific Features

- Access Road
- Timber Harvest Plan Area
- Operating Units

Land Administration

- Land Dispositions
- Surveyed Easements
- Surveyed Land Parcels



- Highway
- Primary Roads
- Local Roads
- Resource / Recreation
- Alley / Service Lane
- Winter

5 References

Canadian Forest Service, *The State of Canada's Forests: 2000-2001,* Ottawa, 2001, p. 38.

Government of Yukon, Energy Mines and Resources, Forest Management Branch, *Forest Health Report 2013*, April 2014.

Yukon Ecoregions Working Group, 2004. Liard Basin. *In:* Ecoregions of the Yukon Territory: Biophysical Properties of Yukon Landscapes, C.A.S. Smith, J.C. Meikle and C.F. Roots (eds.), Agriculture and Agri-Food Canada, PARC Technical Bulletin No. 04-01, Summerland, British Columbia, p. 241-249.

6 Representation Table

The following is a summary of the comments received during the development of this Timber Harvest Plan and how those comments were addressed:

Name/Organization	**Comments**	**Consultation Comment/Response(s)/Mitigation Measures**
Department of Environment	Comments' regarding concerns with upgrading the existing road in relation to moose management was expressed during the YESAB process. During the draft THP review, no additional comments were received.	See Section 3.12
Lands Management Branch	There are no issues from a Land Management Branch perspective. The THP addresses the potential need for a Land Use Permit if existing roads are upgraded.	See Section 3.3
Department of Highways and Public Works, Transportation and Maintenance Branch	Dept. of Highways and Public Works expressed concerns through the YESAB process. Any upgrades to the road will be permanent.	Concerns were incorporated into Section 3.3
Executive Council Office	Consultation with First Nations with respect to potential impacts on their Aboriginal rights includes Traditional knowledge as a source of information.	See Section 3.12