

Little Fox Lake Fuelwood Timber Harvest Plan

within the

Whitehorse Planning Area

**FOREST MANAGEMENT BRANCH
ENERGY MINES AND RESOURCES
YUKON GOVERNMENT**

Prepared: November 2011

Approved by

Pat MacDonell

A/Director

Forest Management Branch

Date

Submitted by

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Area Forester, Whitehorse

Date

Table of Contents

Executive Summary	1
1.0 Introduction	2
1.1 Background	2
1.2 Eco-region and Drainages	2
1.3 Socio-Economic Values	2
2.0 Planning Area Identification	3
2.1 Wildlife	3
2.2 Riparian and Water Resources	3
2.3 Visual Impacts	4
2.4 Heritage and Archaeological Sites	4
2.5 Soils Conservation	5
2.6 Traditional Land Users	5
3.0 Silviculture Section	6
3.1 Harvesting	6
3.2 Reforestation	7
3.3 Site Plans	7
4.0 Access Management Considerations	9
5.0 References	11
6.0 Appendices	12
Appendix 1: Map of Little Fox Lake Fuelwood THP	13
Appendix 2: Fox Lake Area Overview Map	14
Appendix 3: Representations	15
Appendix 4: Stream Assessment No Name Creek, Fox Lake burn, EDI, October 2007	16

Executive Summary

The objective of the Little Fox Lake Fuelwood Timber Harvest Plan (THP) is to continue to provide Whitehorse, and the surrounding communities with a supply of fire killed fuel wood. This plan represents the second phase of harvesting opportunities and is consistent with the previous THP harvesting requirements for fire killed timber in the Fox Lake burn area. The plan was developed using an integrated and balanced approach to forest management and under the direction provided in the *Forest Resources Act and Regulation*.

Fox Lake has been a traditional harvest area for Whitehorse's fuel wood since the 1998 wildfire. This THP proposes harvesting activities across 2057ha and to a maximum volume of 92,565m³.



OU1

1.0 Introduction

1.1 Background

The Little Fox Lake Fuelwood THP is located north of Whitehorse at kilometer 260 on the North Klondike Highway. The area is an overlap traditional territory for Little Salmon Carmacks First Nation, Kwanlin Dun First Nation, and the Ta'an Kwach'an Council. The area has fire killed spruce stands from the 1998 Fox Lake fire. The volume includes both standing dead and blown down. There are some scattered spruce and aspen seedlings throughout the area, and a general grass, herb, and shrub layer. The estimated average volume of the area is 45m³/ha, within the merchantable areas.

1.2 Eco-region and Drainages

This THP is located within the Lebarge Plateau eco-district (Southern Lakes Pelly Mountains Eco-regions, EBA, Nov. 2003) or the Yukon Central Plateau eco-region, and Yukon Headwaters drainage. Forests are found below continuous tree line or lowland shrub communities. Balsam poplar are predominantly found along fluvial systems in the eastern portions of this zone. Forests are mostly white spruce, and lodgepole pine. Aspen is common and most likely associated with disturbance. Some subalpine fir can be found at the higher elevations in this zone but is not common. Black spruce is uncommon in this eco-region. Soils are predominantly tills (Brunisols) on rolling topography

1.3 Socio-economic Values

Whitehorse is home to approximately 26,418 people (June 2010). The major economic drivers in the area are government and the service industry. The burning of wood for heat is still a very important heating method in the Yukon. The gathering and use of fuel wood is a culturally and economically significant process within the Yukon Territory. The forests in the Whitehorse region provide significant ecological and aesthetic values, cultural and heritage values, recreational values, and other non-timber values. Whitehorse's forests can sustain a vibrant, small-scale forest industry that provides timber for local markets, energy, economic opportunity, and employment for the region's residents. Many of the residents of Whitehorse rely on fuel wood harvesting as an economical heating alternative throughout the winter. There is a well-developed fuelwood industry centered on the Whitehorse area.

2.0 Planning Area Identification

The total area identified is 2,057 ha with a maximum harvest volume of 92,565m³ (see Table 1). Note that other fuelwood harvesting opportunities within the area of interest may be identified as the project progresses.

TABLE 1: Merchantable Area and Volume Summary

Operating Units	Estimated Volume/ Hectare (m ³ /ha)	Slope (%)	Aspect	Block Size (ha)	Total Volume Available for Harvest(m ³)	Species Composition	Average Stem Height (m)
1	45	25	E	1470	66150	Spruce	16
2	45	16	W	298	13410	Spruce	15
3	45	10	S	289	13005	Spruce	19
				2057	92565		

Note: This is an average volume; areas within may have higher/lower volume.

2.1 Wildlife

All site plans and operational development must be consistent with current wildlife standards¹ available from Forest Management Branch (FMB). These standards have been developed to ensure well thought-out and balanced planning occurs with respect to wildlife and forest resources. Throughout the preliminary reconnaissance and consultation, no significant wildlife concerns were noted. This area does not conflict with any fish or wildlife management plans.

Occasional moose, black and grizzly bears use the area, however this area is outside any recognized caribou ranges. Naturalized elk also use this area. Wildlife use is increasing as the cover and forage available increases.

2.2 Riparian and Water Resources

All riparian management must follow the most current FMB riparian management standards. The *Forest Resources Act* standards address riparian management guidelines. The closest stream is Unnamed Creek located west of the highway and parallel to the OU#1 eastern boundary and flows north from Little Fox Lake.

Five small feeder streams in OU 1 run down into Unnamed Creek.

¹ YUKON FOREST RESOURCES ACT, Wildlife Features Standard.

Another small stream is within OU 3.



Unnamed Creek, also at a crossing point.

2.3 Visual Impacts

Visual impacts of fuelwood harvesting will be limited. Although much of this area is on slopes it is all within burnt stands and not in established green forest. Block shapes will be irregular and there will not be complete removal of the stand structure. This will minimize the visual contrast of the harvested blocks. Folds in the land and an established “green up” of shrubs and herbs will soften the visual impact. There are nearby residences on east side of Little Fox Lake. Buffers as per the FMB riparian management standards will be applied on the west side of Little Fox Lake which will reduce any visual impacts.

2.4 Heritage and Archaeological Sites

Yukon Archaeological Sites Inventory and Yukon Historic Sites Inventory did not identify any known historic or archaeological sites within the updated Fox Lake THP.

This area has never been systematically surveyed. Because the area has been burned over, above ground features such as caches or cabins likely no longer exist and would not be a concern. Much of the area is rugged terrain and archaeological potential is limited. Heritage Branch has no concerns with the area of interest east of the Klondike Highway (OU 2). The larger area (OU 1) on the west side of Little Fox

Lake has elevated potential along the lake, and No Name Creek. The small feeder streams in OU 1 are not a significant concern. Much of the heritage concern on these areas will be addressed through the watershed buffer. Heritage Branch requests that if all season access is planned within 100 meters of Little Fox Lake or No Name Creek that an archeological assessment of the route is carried out in advance. All proposed access into the south portion of OU1 is planned for winter only. Proposed access into the north portion of OU 1 is all season: an archeological assessment will be completed for the all season access in conjunction with a YESAA screening.

2.5 Soils Conservation

All harvesting operations must follow current FMB soil conservation standards. These standards will ensure that the integrity of soils is maintained across all sites. Harvesting will only be permitted during dry summer or winter conditions in OU 2 and the north of OU 1, and during winter conditions in the south of OU 1 and OU 3 in order to mitigate any risks to soil. New access will also need to be constructed. Due to fine textured soils and diverse conditions present, this will need to be closely monitored by operators to ensure that they are within the soil conservations standards set by the FMB.

2.6 Traditional Land Users

This area is not well known as a traditional hunting and berry picking area, since the forest fire. There are three Registered Trapping Concessions within the THP; RTC 217 is active, while RTC 223 and RTC 224 are both vacant. However trapping in these will remain poor until the forest has a chance to re-establish and mature. These activities have been considered throughout the planning process and are considered compatible with the THP.



OU1

3.0 Silviculture Section

3.1 Harvesting

This is a harvest of dead standing and dead down fire killed conifer forest. Breakage and smaller stems and deciduous stems will provide for coarse woody debris. A total of 92,565m³ may be removed from the THP. Harvesting operations shall minimize unnecessary damage to any regeneration.

The 1998 Fox Lake fire covered 134,197 ha. The harvesting to date has impacted 700 ha of this or 0.5% of the landscape. This THP would impact an additional 2,057 ha or an additional 1.5% of the burn. Total impact would be at 2% of the post fire landscape.

Harvesting methods include both hand and mechanical falling. Harvesting activities may occur in dry weather and winter conditions and is expected to continue in the area until harvesting is completed. The estimated completion date is 2030; however this is dependant on industry demands, other sources of wood; therefore the timeline may be extended if harvesting opportunities still exist.

The volume limit for the area was set based on expected demand for that area and is not necessarily an environmental threshold. Also this volume is fire killed and not part of the annual allowable cut. Thus, if 92,565m³ is harvested it may be

appropriate to reassess the area to determine if further harvesting opportunities still exist within the same area.

Operating unit #1 is likely to be the first area harvested as this has the most volume and the greatest client interest. Operating Unit #1 is 1470 hectares and contains an estimated 66150 m³ of fuelwood. Even at a harvest level of 10,000 m³ per year this would provide a seven year supply. The other identified operating units would be harvested progressively and further operating units may be identified later, these would adhere to the same standards of development. Please refer to appendix 2 for an overview map.

3.2 Reforestation

The schedule for a post-harvest establishment survey(s) will be outlined as part of the site plan for each harvest block. The results of the survey(s), the Silviculture Regulation and the silviculture standards will guide decision-making with respect to regenerating these harvest blocks. The *Forest Resources Act* standards define the stocking standards. Natural regeneration is the preferred option with artificial regeneration being used to supplement natural regeneration when necessary. White spruce will be the preferred reforestation species, with aspen, lodgepole pine, and black spruce also being acceptable.

3.3 Site Plans

Site plans which are part of the cutting permit will address the following operational details; soils, season of operability, slopes, and special concerns, stand and site conditions, roads and landings descriptions, riparian buffers, management objectives, site prescription, and the reforestation plan.

The operational details of the Timber Harvest Plan are completed in advance of the issuance of the license and permitting phase. The cutting permit will address the details of the harvest blocks including operator specific requirements, block locations, design, and fuelwood volume within the designated Operating Units.



OU1

4.0 Access Management Considerations

New road access will be required. The Forest Resources Act standards define road classification and construction standards. Any new road development will need to go through the Yukon Environmental and Socio-economic Assessment Board.

Harvesting will occur in dry weather and winter only. Access will be dry weather or winter for the north of OU 1, and for OU 2. The south of OU 1 and OU 3 is planned to be winter only. Access corridors have been identified within the THP (see map) that would support winter or dry weather roads. Two proposed locations have been identified that could support a constructed creek crossing of Un Named Creek. A proposed ice bridge crossing of Little Fox Lake could also be used. Gates are planned to be used to protect roads from damage during wet weather and to allow for the management of wildlife, and to ensure public safety.

It is likely that the south end of OU 1 would be the first area to see road development, as it contains the majority of the wood, and there are fewer road constraints.



OU1



Wetland crossing point of no name creek.



Potential ice bridge location over Little Fox Lake

**Little Fox Lake
Draft Timber Harvest Plan**

5.0 References



OU1

6.0 Appendices

Appendix 1: Update of Fox Lake Commercial Fuelwood Planning Area
Timber Harvest Plan Fuelwood Area Map

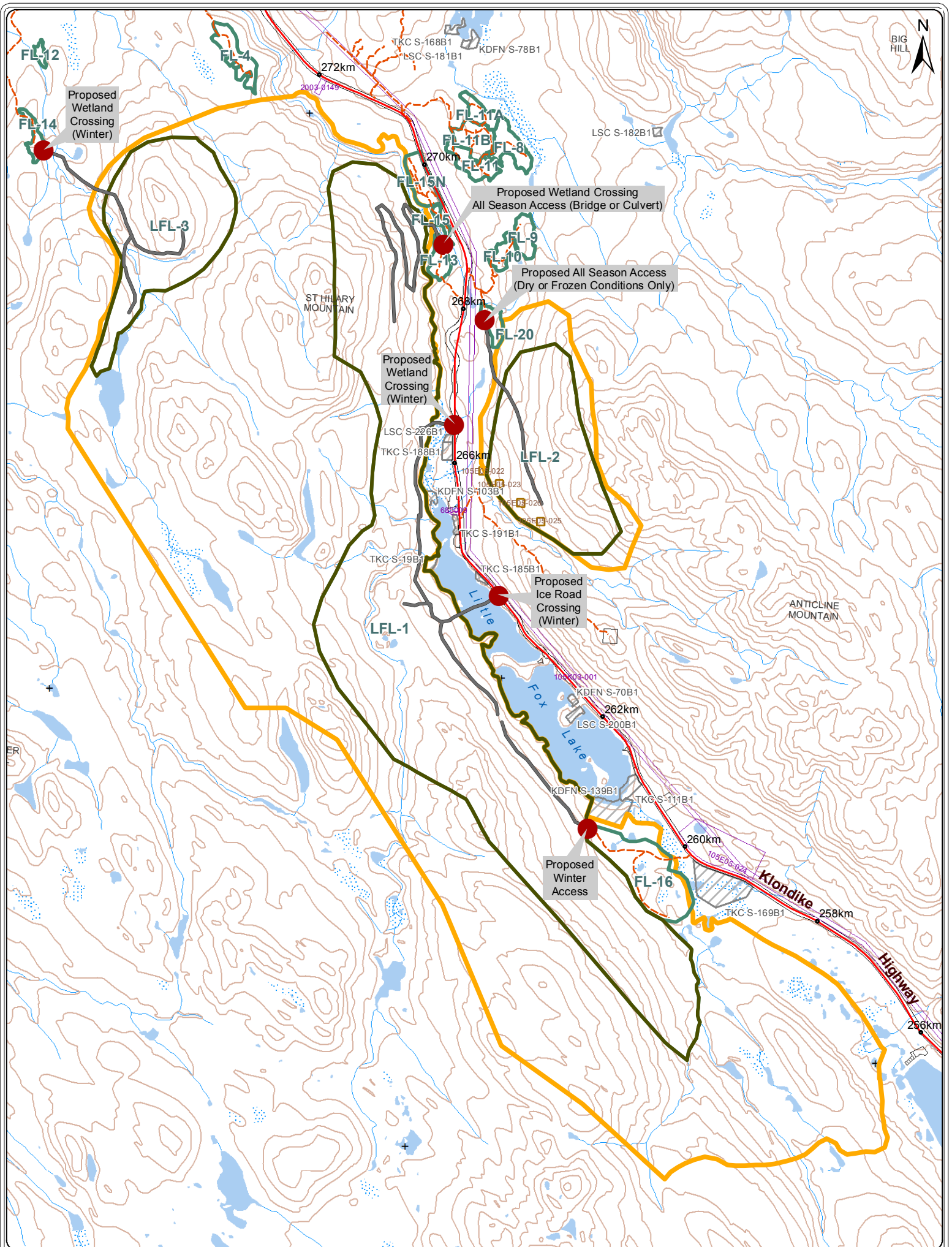
Appendix 2: Fox Lake Overview Map

Appendix 3: Representations

Appendix 4: Stream Assessment, No Name Creek - Fox Lake burn
EDI, October, 2007

Appendix 1:

Map of Little Fox Lake Fuelwood Timber Harvest Plan

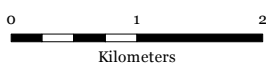


2011 Little Fox Lake Fuelwood Timber Harvest Plan Area

Southern Lakes District

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

Date: November 28, 2011



1:60,000 Yukon Albers
 NAD 83

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

Project Specific Features

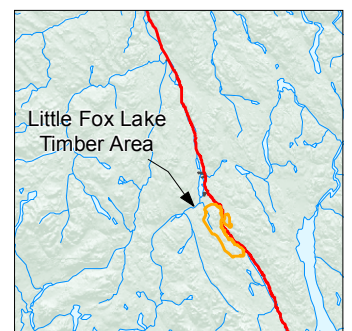
- Proposed Access Point
- Proposed Access Roads
- Existing Access Roads
- ✕ Permanent Sample Plot
- Proposed Operating Units
- Operating Units
- Timber Harvest Plan Area (Located in Fox Lake Burn)

Land Administration

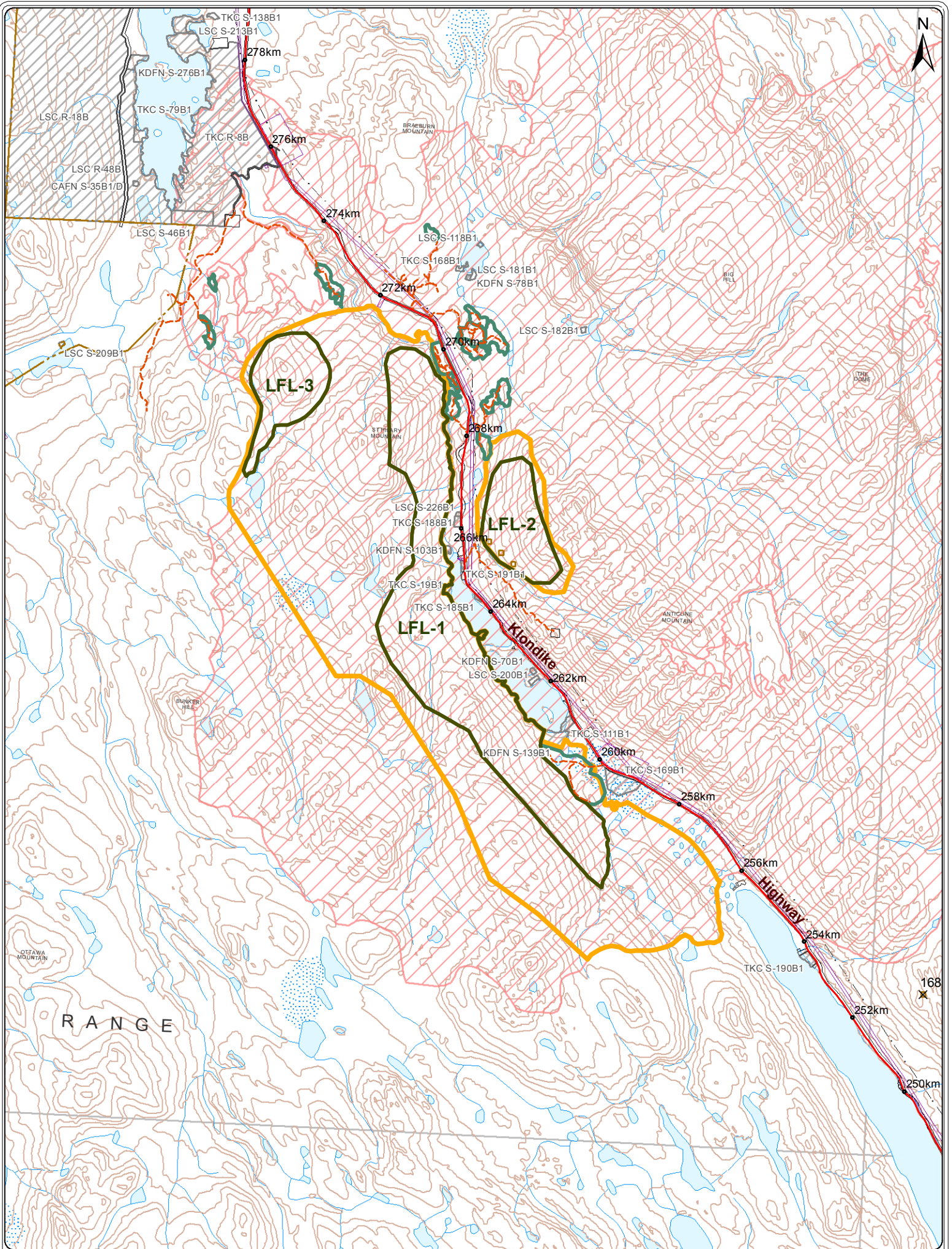
- Agricultural Land Applications
- Agricultural Land Dispositions
- Land Applications - Active
- Land Dispositions
- Land Licenses
- Notations
- Surveyed Easements
- Surveyed Land Parcels

First Nation Administration

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



Appendix 2: Fox Lake Overview Map



2011 Little Fox Lake Fuelwood Timber Harvest Plan Area Overview

Southern Lakes District

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

Date: December 19, 2011



1:100,000 Yukon Albers
 NAD 83

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

Project Specific Features

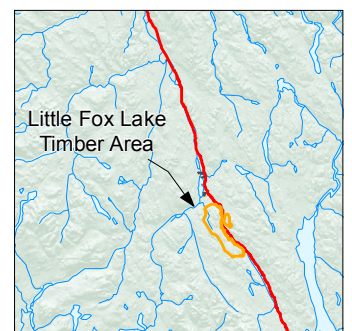
- Existing Access Roads
- ✕ Permanent Sample Plot
- Proposed Operating Units
- Operating Units
- Timber Harvest Plan Area
- 1998 Fox Lake Burn

Land Administration

- Agricultural Land Applications
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First Nation Administration

- A: Surface and Subsurface Rights
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Appendix 3: Representations

**Appendix 4: Stream Assessment
No Name Creek, Fox Lake burn
EDI, October 2007**



EDI ENVIRONMENTAL DYNAMICS INC.
Natural Resource Consultants

Whitehorse Office: 402 Hawkins Street,
Whitehorse, Yukon Territory Y1A 1X8 Phone
(867) 393-4882 Fax (867) 393-4883

October 26, 2007

Scott Cole, Practices Forester Forest Management Branch (K-918) Energy, Mines and Resources Yukon
Government Box 2703 Whitehorse, YT, Y1A 2C6

Dear Scott:

Re: Stream Assessment within the Fox Creek Burn.

As you are familiar, you and I visited some potential stream crossings of Little Fox Creek (local name; watershed code 800-8636-303-362) on October 18, 2007. The main purpose of the site visit was to determine suitable road crossing sites from a fish and fish habitat perspective.

Little Fox Creek flows out of the north end of Little Fox Lakes (there are two lakes joined by a short channel) and flows north/northwest for approximately 12 km into Braeburn Lake. FISS (2007) documents the presence of Arctic grayling (*Thymallus arcticus*), lake trout (*Salvelinus namaycush*) and burbot (*Lota lota*) in Little Fox Lake. Braeburn Lake has documented lake trout, Arctic grayling, northern pike (*Esox lucius*), lake whitefish (*Coregonus clupeaformis*) least cisco (*Coregonus sardinella*), and whitefish (general; FISS 2007^a).

No fish distribution information could be found specifically on Little Fox Creek. Fish sampling was not part of this study; however, given the known species distribution upstream and downstream, it is assumed that Arctic grayling, juvenile burbot and slimy sculpin^b (*Cognatus cognatus*) would be the most likely species to use Little Fox Creek. It should be noted that inconsistent channelization and beaver activity may actually limit the distribution of fish in the creek; however, this was not investigated.

This stream typically flows in a significant valley with a flat bottom that has notable riparian influence (areas that are seasonally wet). In the portions observed during the field visit, there appears to a variety of habitats present including areas with one defined channel, areas with spread out flow through multiple channels and wetland areas with beaver activity and associated ponding.

Note FISS also documents chinook salmon in Braeburn Lake; however, these are likely found only in the outlet stream (Klusha Creek).^b Although slimy sculpin are not documented in the Little Fox lakes and Braeburn Lake, it is likely they do occur there.

**Little Fox Lake
Draft Timber Harvest Plan**

Three crossing sites were evaluated and are described below. It should be noted that crossing sites 1 and 2 access a similar area; therefore, selection of one site eliminates the need for the other.

Crossing Site 1: Downstream Most Crossing
Approximately 3.9 km downstream of Little Fox
Lake UTM: 8.463,467.6,807,083

At this potential crossing site, the stream has a slow moving straight channel (4.2 m channel width, 0.5% gradient) that flows through a shrub riparian area (photos 1 and 2). The channel appears quite stable with bed material consisting of boulders and fines and stable stream banks. The stream provides good rearing habitat with abundant cover for fish, dominated by boulders. No spawning gravels were observed in the vicinity of the potential stream crossing site. Approximately 60 m downstream of the crossing site the stream splits into multiple channels. There was also sign of past beaver activity and a potential groundwater source (a rock outcrop) in this downstream location.

The selected crossing site is suitable given that the stream is stable, with no notable critical or unique fish habitat. It also represents the location that would require the shortest distance to cross the riparian area (as opposed to Crossing Site 2). It is a significant distance from the potential groundwater source and multiple channels downstream. As there is rearing habitat at the site, a structure that spans the entire channel and does not disturb the stream banks would be desirable. Approaches should be constructed so that they are stable and do not contribute fine materials to the stream channel during high water events or in the event of flooding and or beaver activity.

Photo 1. Downstream view of the proposed crossing (as marked) and associated riparian area.





Photo 2. Downstream view of proposed stream crossing site.

Crossing Site 2: Approximately 3.7 km downstream of little Fox Lake UTM: 8. 463,548. 6,806,974 (approx)

At this potential crossing site, the stream is spread out in numerous channels over a width of 10-20 m within a seasonally wet shrub dominated riparian area that is approximately 60 m wide (Photo 3). Significant portions of these channels flow underground and as such it is difficult to determine the exact locations of flow throughout this area (Photo 4). The fish habitat in this area is generally not as good as other portions of the stream due to spread out, fast and underground flow; however, it is estimated that fish could migrate through this section to access habitats upstream and downstream. Upstream and downstream of this location the stream had flow concentrated in one main channel.

The proposed crossing alignment would require that the stream be crossed at an angle and thus the road would cover a longer distance in the riparian (70 m; Photo 3). Given the spread out and underground nature of flow in this area it would be extremely difficult to design a crossing that would not impact the flow and water quality in this area. In addition, the dynamic nature of the stream in this area may lead to future erosion problems of any approaches and structures built over this area. Even if the impact on the fish habitat at this crossing site is minimal, the potential impacts on downstream habitats (water quality) could be notable if this crossing site is selected. As such, this crossing location is not as desirable as Crossing Site 1 from a fish and fish habitat perspective.



Photo 3. Upstream view of stream riparian and proposed crossing location (as marked).

Photo 4. Upstream view of one of the multiple channels in the vicinity of the proposed crossing site.



**Little Fox Lake
Draft Timber Harvest Plan**

Crossing Site 3: Approximately 0.1 km downstream of Little Fox Lake UTM: 8. 463,768. 6,803,515 (approx)

This potential stream crossing site was located approximately 100 m downstream of Little Fox Lakes. The stream in this location is 4.6 m wide and flows through a low lying area. In this vicinity the stream had good rearing habitat with abundant cover dominated by deep pools and instream vegetation.

Bed material was dominated by cobbles followed by fines. No gravels suited to Arctic grayling spawning were found in this section of the stream. As such this section of stream is likely used for rearing and as a migration corridor for fish using downstream portions of this stream. Given its close proximity to the lake, this section of stream is accessible and thus likely gets significant use by fish populations in the lake (i.e. compared to crossing sites 1 and 2).

From a fish and fish habitat perspective, the stream channel at the proposed location generally has characteristics that are suitable when selecting a crossing location. First, there was no critical habitat observed at the location that would be notable sensitive (i.e. a significant spawning location). Second, the channel is quite straight and appears to be quite stable (i.e. no evidence of significant erosion occurring), so a properly selected and installed crossing structure should not restrict the stream's natural movement. A structure that spans the entire channel and does not impact the stream banks would be most suitable.

A notable concern with this crossing site is that the riparian area on the right bank (looking downstream) of the stream channel is seasonally wet (Photo 6). Construction of approaches in this location will have to ensure that impacts to the water flow and sediment mobilization are addressed. Constructing the approach with coarse material and installation of a culvert in the approach may allow water to flow through this area during high flows.



Photo 5. Downstream view of proposed crossing site.

Photo 6. Downstream view of wet riparian area, some flow noted in gully.



I trust that this letter provides you with the required information regarding these crossings. Should you require additional information please call me at (867) 393-4882.

Sincerely

A handwritten signature in black ink, appearing to read "Patrick Tobler". The signature is stylized with a large, sweeping flourish at the end.

Patrick Tobler, B.Sc., R.P.Bio. Branch Manager/ Seni