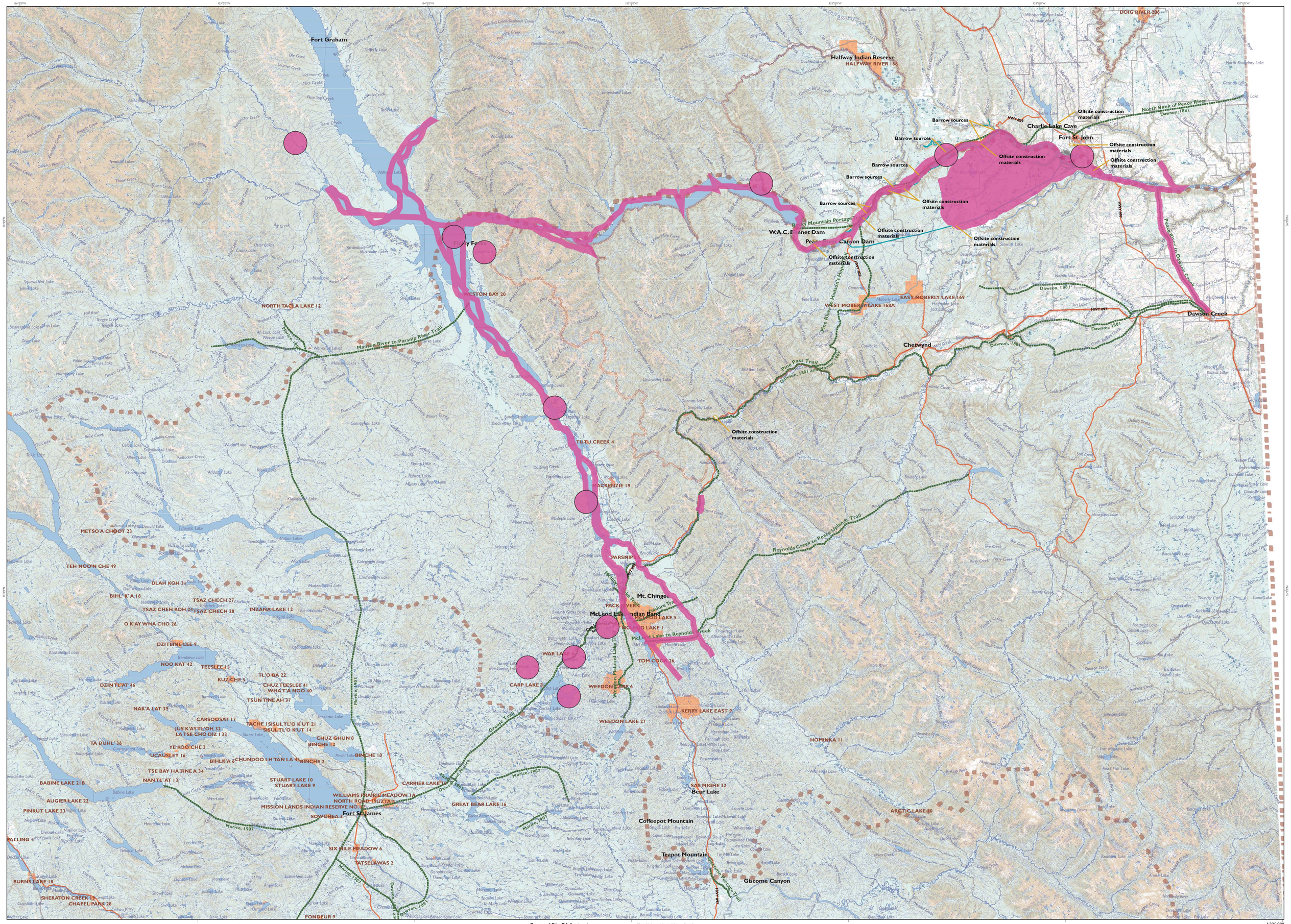

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Produced for.....Amber Ridington, McLeod Lake Indian Band
Traditional Land Use Study for BC Hydro's proposed Site C Dam
Coordinate System.....NAD 1983 UTM Zone 10N
Date.....April, 2013
Data Sources.....Natural Resources Canada (CanVec), BC Hydro, BC Ministry of Forests, and Natural Resources Operations (RAAD, AOA), McLeod Lake Indian Band

Legend

Historical trails (Trail labels)
Trail name
Historically mapped

MLIB Territorial Boundary
BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
Wetlands

Highway
Major road
Rail
Residential area (Settlement labels)
Indian Reservation (RESERVE LABELS)

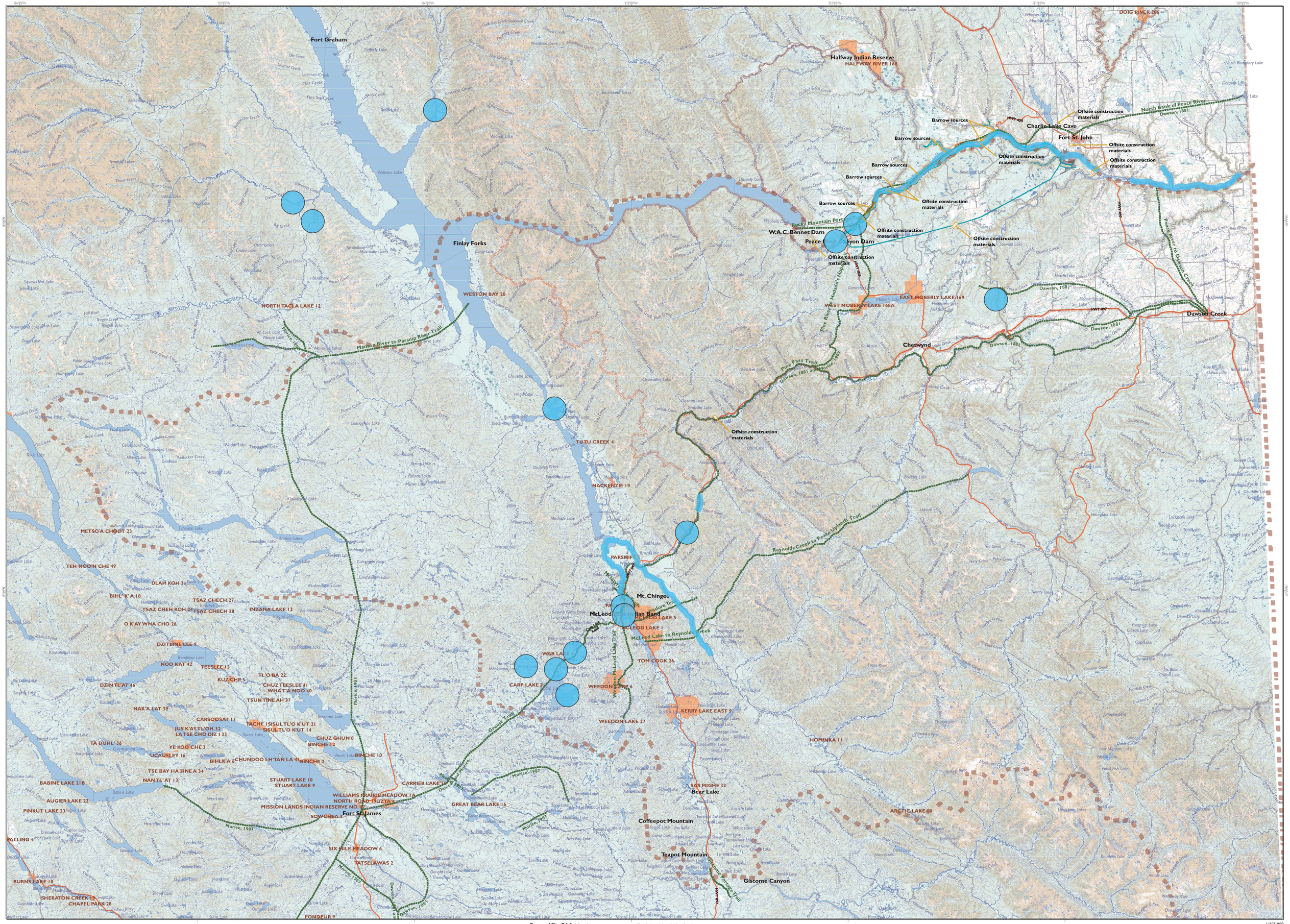
Proposed Site C Infrastructure:
Offsite construction materials (barrow sources)
Offsite construction materials
Forestry clearing access roads
Reservoir and transmission corridor
Dam generating station and site area

Traditional Land Use Study
Gathering
Hunting
Habitation and transportation
Other heritage value(s)
Fishing

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Habitation and Transportation (used for hunting and fishing)

1:325,000

0 5 10 20 30 40 Kilometers
0 3 6 12 18 24 Miles



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Date.....April, 2013
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Legend

- Historical trails (Trail labels)
- Trail name historically mapped by
- MLIB Territorial Boundary
- BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
- Wetlands
- Highway
- Major road
- Rail
- Residential area (Settlement labels)
- Indian Reservation (RESERVE LABELS)

Proposed Site C Infrastructure:

- Offsite construction materials (barrow sources)
- Offsite construction materials
- Forestry clearing access roads
- Reservoir and transmission corridor
- Dam generating station and site area

Traditional Land Use Study

- Gathering
- Hunting
- Habitation and transportation
- Other heritage value(s)
- Fishing

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Fishing

1:325,000

0 5 10 20 30 40 Kilometers
0 3 6 12 18 24 Miles

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Legend

- Historical trails (Trail labels)
- Trail name / Historically mapped by
- MLIB Territorial Boundary
- BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
- Wetlands
- Highway
- Major road
- Rail
- Residential area (Settlement labels)
- Indian Reservation (RESERVE LABELS)

Proposed Site C Infrastructure:

- Offsite construction materials (barrow sources)
- Offsite construction materials
- Forestry clearing access roads
- Reservoir and transmission corridor
- Dam generating station and site area

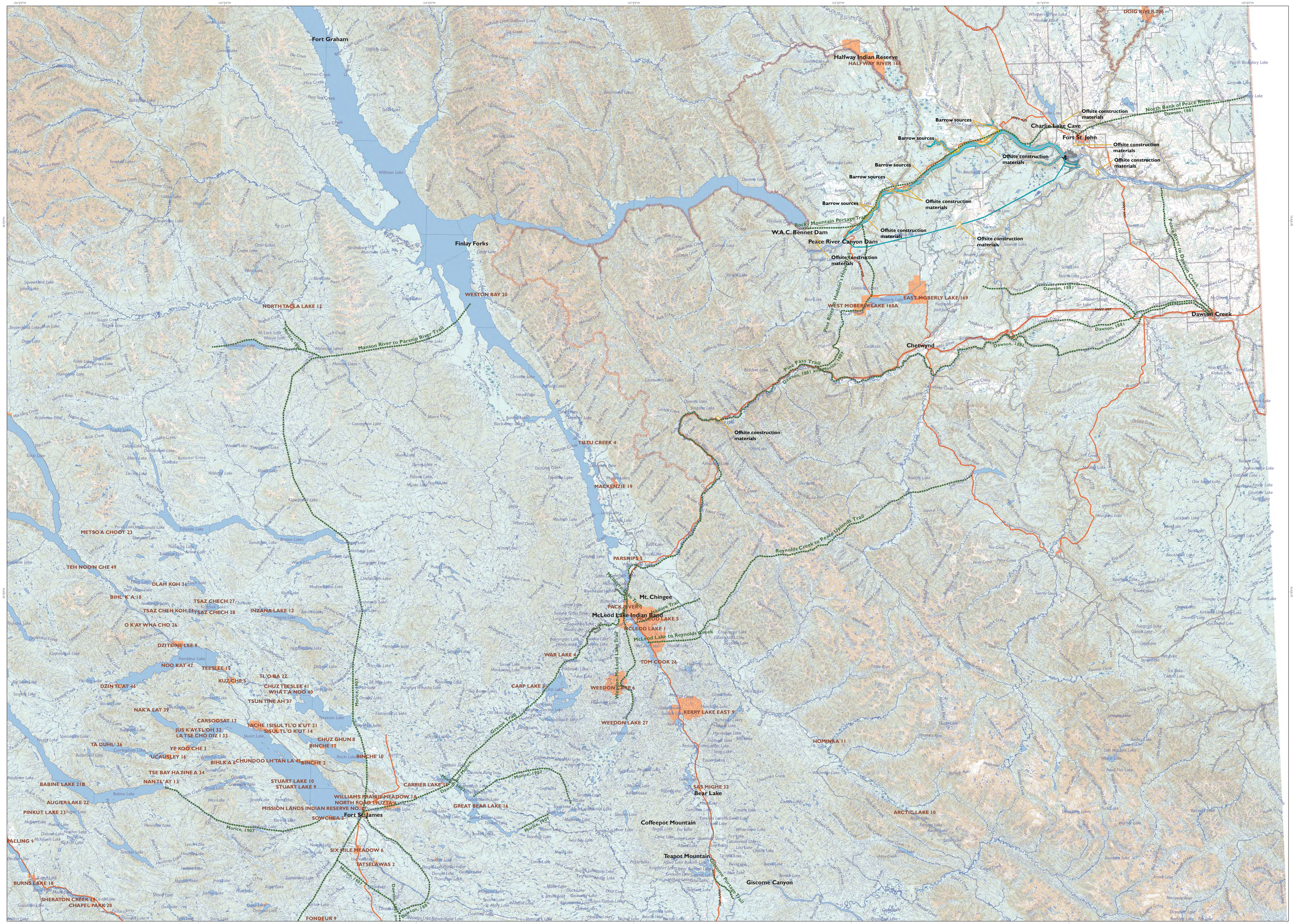
Traditional Land Use Study

- Gathering
- Hunting
- Habitation and transportation
- Other heritage value(s)
- Fishing

1:325,000

0 5 10 20 30 40 Kilometers
0 3 6 12 18 24 Miles

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Hunting



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Produced for.....Amber Ridington, McLeod Lake Indian Band
Traditional Land Use Study for BC Hydro's proposed Site C Dam
Coordinate System.....NAD 1983 UTM Zone10N
Date.....April, 2013
Data Sources.....Natural Resources Canada (CanVec), BC Hydro, BC Ministry of Forests, and Natural Resources Operations (RAAD, AOA), McLeod Lake Indian Band

Legend

- Historical trails (Trail labels)
- Trail name — Historically mapped UT
- MLIB Territorial Boundary
- BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
- Wetlands
- Highway
- Major road
- Rail
- Residential area (Settlement labels)
- Indian Reservation (RESERVE LABELS)

Proposed Site C Infrastructure:

- Offsite construction materials (barrow sources)
- Offsite construction materials
- Offsite construction materials
- Forestry clearing access roads
- Reservoir and transmission corridor
- Dam generating station and site area

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Historic Trails

1:325,000

0 5 10 20 30 40 Kilometers
0 3 6 12 18 24 Miles
N

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Produced for....................Amber Ridington, McLeod Lake Indian Band
Traditional Land Use Study for BC Hydro's proposed Site C Dam
Coordinate System.........NAD 1983 UTM Zone10N
Date...................................April, 2013
Data Sources...................Natural Resources Canada (CanVec), BC Hydro, BC Ministry of Forests, and Natural Resources Operations (RAAD, AOA), McLeod Lake Indian Band

Legend

Historical trails (Trail labels)
Trail name / Historically mapped by
MLIB Territorial Boundary
BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
Wetlands
Highway
Major road
Rail
Residential area (Settlement labels)
Indian Reservation (RESERVE LABELS)

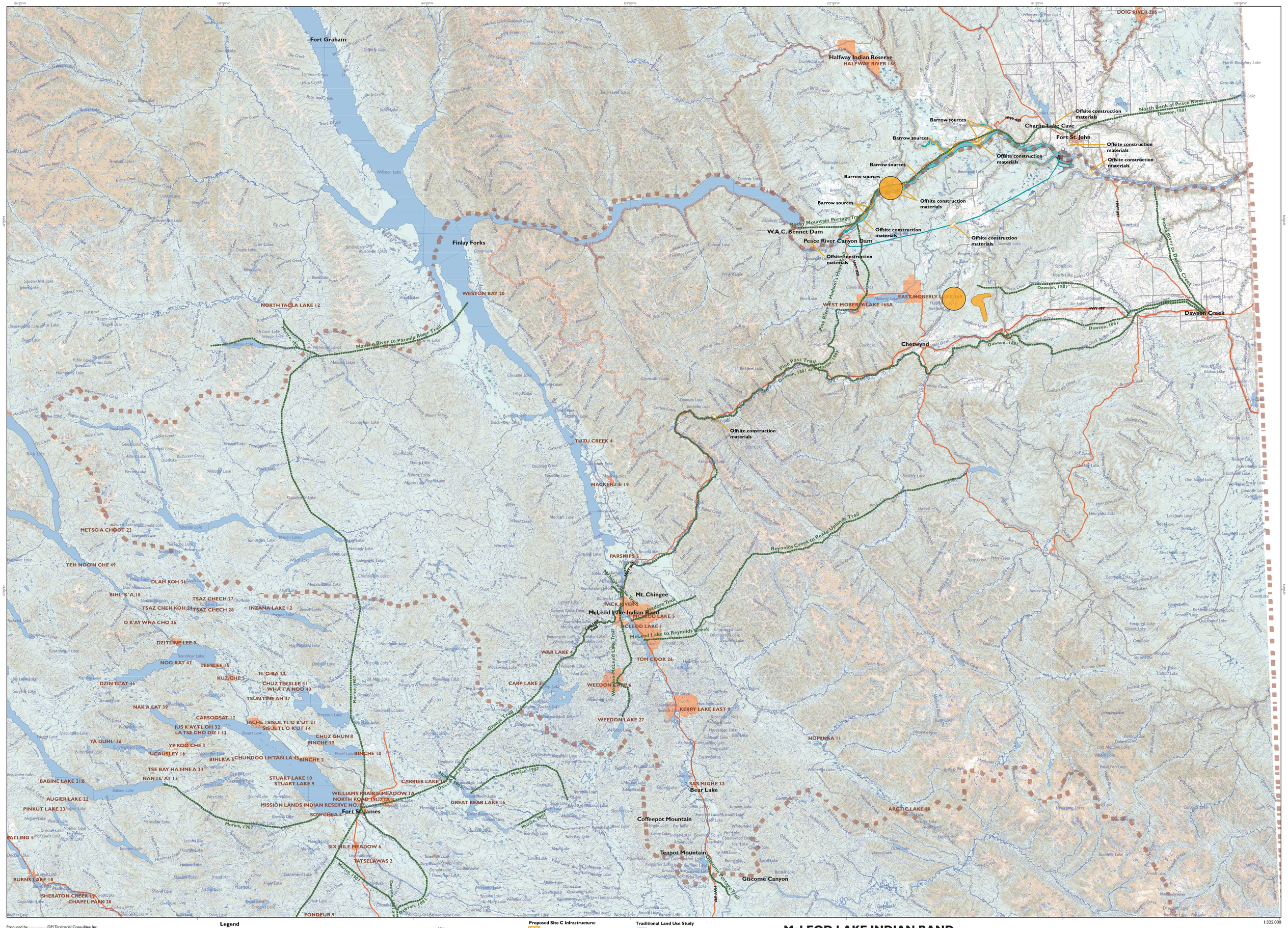
Proposed Site C Infrastructure:
Offsite construction materials (barrow sources)
Offsite construction materials
Forestry clearing access roads
Reservoir and transmission corridor
Dam generating station and site area

Traditional Land Use Study
Gathering
Hunting
Habitation and transportation
Other heritage value(s)
Fishing

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Other Heritage Values

1:325,000

0 5 10 20 30 40 Kilometers
0 3 6 12 18 24 Miles



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Produced for.....Amber Ridington, McLeod Lake Indian Band
Traditional Land Use Study for BC Hydro's proposed Site C Dam
Coordinate System.....NAD 1983 UTM Zone 10N
Date.....April, 2013
Data Sources.....Natural Resources Canada (CanVec), BC Hydro, BC Ministry of Forests, and Natural Resources Operations (RAAD, AOA), McLeod Lake Indian Band

Legend

Historical trails (Trail labels)
Trail name Historically mapped 19
MLIB Territorial Boundary
BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use
Wetlands
Highway
Major road
Rail
Residential area (Settlement labels)
Indian Reservation (RESERVE LABELS)

Proposed Site C Infrastructure:
Offsite construction materials (barrow sources)
Offsite construction materials
Forestry clearing access roads
Reservoir and transmission corridor
Dam generating station and site area

Traditional Land Use Study
Gathering
Hunting
Habitation and transportation
Other heritage value(s)
Fishing

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map:
Gathering

Produced by.....DPI Territorial Consulting Inc.
Produced for.....Amber Ridington, McLeod Lake Indian Band
Traditional Land Use Study for BC Hydro's proposed Site C Dam
Coordinate System.....NAD 1983 UTM Zone10N
Date.....April, 2013
Data Sources.....Natural Resources Canada (CanVec), BC Hydro, BC Ministry of Forests, and Natural Resources Operations (RAAD, AOA), McLeod Lake Indian Band

Legend

Historical trails (Trail labels)

Trail name (historically mapped trl)

MLIB Territorial Boundary

BC Hydro Regional Assessment Area: Current Use of Lands and Resources for Traditional Use

BC Hydro Local / Regional Heritage Resources

BC Hydro Local Assessment Area: Current Use of Lands and Resources for Traditional Use

Wetlands

Highway

Major road

Rail

Residential area (Settlement labels)

Indian Reservation (RESERVE LABELS)

Proposed Site C Infrastructure:

Offsite construction materials (barrow sources)

Offsite construction materials

Reservoir and transmission corridor

Dam generating station and site area

Traditional Land Use Data:

Fishing

Gathering

Habitation and transportation

Other heritage value(s)

Hunting

McLEOD LAKE INDIAN BAND
Traditional Land Use Theme Map
Composite of All Traditional Use

1:325,000

0 5 10 20 30 40 Kilometers

0 3 6 12 18 24 Miles

N

SITE C CLEAN ENERGY PROJECT

McLeod Lake Indian Band

Traditional Land Use Baseline And Assessment Report

Prepared for:

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May 2013

May 24, 2013 Aboriginal Group Amendment Report

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1. INTRODUCTION

1.1 Approach

1.1.1 Consideration of Additional Information

The EIS submitted on January 25, 2013 includes an assessment of the potential effects of the Project on the current use of lands and resources for traditional purposes by McLeod Lake Indian Band (MLIB) (section 19.4), as well as on the potential impacts of the Project on the exercise of MLIB's asserted or established Aboriginal and treaty rights (section 34.3.3). The assessment considered baseline information, described in section 19.3.1.4, made available by MLIB to BC Hydro and from other publicly available sources. As described in section 19.4, on page 19-66, MLIB had no reported current use of lands and resources for traditional purposes in the LAA, and therefore the Project is not expected to have an effect on the current use of or access to lands and resources for traditional purposes for MLIB. MLIB was therefore not considered further in the effects assessment. Similarly, section 34.3.3 described that because section 19.4 stated that the Project is not expected to have an effect on the current use of or access to lands and resources for traditional purposes for MLIB, consequently, the Project is not expected to have an impact on the McLeod Lake Indian Band's exercise of its treaty rights. In the EIS, BC Hydro noted that it had provided funding for MLIB to undertake a Traditional Land Use Study (TLUS), and that when BC Hydro received the TLUS, it would be considered and incorporated into the EIS, as appropriate.

MLIB prepared the McLeod Lake Indian Band Traditional Land Use Study Assessing Potential Heritage and Land Use Impacts for BC Hydro's "Site C Clean Energy Project" on the Peace River, B.C. (TLUS) (Ridington 2013) for consideration in the Site C Clean Energy Project (the Project) environmental assessment Process. The TLUS report was submitted to BC Hydro in May, 2013, after BC Hydro had submitted the Environmental Impact Statement (EIS) to the BC Environmental Assessment Office and the Canadian Environmental Assessment Agency. As a result, BC Hydro considered the TLUS during the EIS review phase. The TLUS is presented in its entirety in Appendix 3.

The TLUS was provided to the Wildlife, Fish, Vegetation, Heritage, Human Health and Current Use of Lands and Resources for Traditional Purposes Technical Leads for review and consideration in this Amendment Report.

Issues and concerns presented in the TLUS during the pre-Application phase are addressed in the EIS (January 25, 2013). Issues and concerns raised in the TLUS that were not raised during the pre-Application phase are outlined in this Amendment Report. Similarly, baseline information from the TLUS that is additional to what was provided in the EIS is presented in this Assessment Report. No additional data, for example census data or traditional use information from additional secondary sources, was gathered by BC Hydro to prepare this Assessment Report.

New baseline information is presented by Valued Component (VC) and considered against the effects assessment undertaken for that VC, using the methodology applied in the EIS (Volume 2 Assessment Methodology and Environmental Effects Assessment Section 10 Environmental Assessment Methodology).

Integration of the TLUS data posed a number of challenges. To begin with, the study area defined in TLUS report submitted to BC Hydro does not align precisely with the LAA or RAA. Interpretation of the TLUS and other maps was necessary in an attempt to discern the location of activities in relation to the LAA or RAA. Similarly, the spatial information supplied by MLIB was buffered, or redacted, for purposes of confidentiality or sensitivity, making it difficult to identify specific locations in relation to the LAA. Lastly, participants identified in the TLUS provide information on the type of traditional activities they engage in, but in many cases do not indicate the where they undertake them in their traditional territory.

12. FISH AND FISH HABITAT

12.1 Key Issues

The TLUS does not raise any new issues or concerns related to the fish and fish habitat VC.

12.2 Baseline Conditions

The TLUS documents use of the following species: bull trout and Dolly Varden. The locations of the harvesting included: McLeod Lake, Carp Lake, Turner Lake, MacKinnon Lake, Deer Lake, Pine River, Peace River, Moberly River, Beatton River, Williston Reservoir, Parsnip River, Dinosaur Reservoir, Dwyer Creek, and Porter Creek. All of the fish species identified in the TLUS had previously been accounted for in the Fish and Fish Habitat baseline conditions in EIS section 12.3.

12.3 Effects Assessment and Mitigation

Some of the areas where the harvest of fish occurs lie outside the spatial areas considered by the assessment and the Project would not impact those resources. Where the species harvested are located within the spatial area for the assessment the species harvested and the habitats they depend upon were previously taken into account in the assessment and as such no changes are required to the assessment of the fish and fish habitat VC, described in EIS section 12.

12.4 Residual Effects

No changes are required to the residual effects section for the fish and fish habitat VC in EIS section 12.6 because the effects assessment has not changed.

12.5 Cumulative Effects Assessment

No changes are required to the cumulative effects assessment for the fish and fish habitat VC in EIS section 12.7 because the residual effects have not changed.

12.6 Follow-up Programs

No changes are required to the monitoring and follow-up for the fish and fish habitat VC in EIS section 12.8.

~~This information was considered with respect to the assessment on Fish and Fish Habitat. Based on that consideration, a change/no change to the effects assessment is required.~~

13. VEGETATION AND ECOLOGICAL PLANT COMMUNITIES

13.1 Key Issues and Identification of Potential Effects

The TLUS does not raise any new issues or concerns related to the vegetation and ecological plant communities VC.

13.2 Baseline Conditions

Table 13-1 presents two new Aboriginal plant species of interest identified in the TLUS not already included in the baseline information for the vegetation and ecological communities VC in EIS section 13.2.

Table 13-16 Aboriginal Plant Species of Interest Occurrence in Terrestrial Ecosystems

Plant species	Terrestrial Ecosystem
Fungi	Specific species of fungi were not recorded during ecosystem mapping
Muskeg peat	Wetlands

13.3 Effects Assessment and Mitigation

The two species of plants identified above were not specifically addressed in the EIS. The potential effect on these species is included in the assessment on general vegetation (for fungi) and on wetlands (for muskeg peat). As such, no changes are required to the assessment of the vegetation and ecological plant communities VC described in the EIS Section 13.

13.4 Residual Effects

No changes are required to the residual effects for the vegetation and ecological communities VC provided in EIS section 13.4 because the effects assessment has not changed.

13.5 Cumulative Effects Assessment

No changes are required to the cumulative effects assessment for the vegetation and ecological communities VC in EIS section 13.5.

13.6 Monitoring and Follow-up Programs

No changes are required to monitoring and follow-up for the vegetation and ecological communities VC in EIS section 13.6.

14. WILDLIFE RESOURCES

14.1 Key Issues

The TLUS does not raise any new issues or concerns related to the wildlife resources VC.

14.2 Baseline Conditions

Most of the wildlife species mentioned by in the TLUS were either directly assessed (beaver, deer, elk, moose, ducks, geese, grouse, and grizzly bear) or were considered and excluded for various reasons (black bear, and caribou). Clams were not addressed in the assessment and MLIB mentions they are collected on the McLeod River, outside of the LAA. Ground hog (possibly the species recognized provincially as woodchuck) were not addressed in the assessment. Ground hog is considered abundant within British Columbia.

14.3 Effects Assessment and Mitigation

Some of the areas where the wildlife species mentioned in the TLUS are harvested lie outside the spatial areas considered by the assessment and the Project would not impact those resources. Where the species harvested are located within the spatial area for the assessment, the species harvested were previously taken into account in the assessment set out in Section 14, or were excluded for reasons set out in Table 14.2. In the case of ground hogs, they are considered abundant and no measurable effects to the population due to the Project are anticipated.

14.4 Residual Effects

No changes are required for the wildlife resources VC provided in EIS section 14.5 because the effects assessment has not changed.

14.5 Cumulative Effects Assessment

No changes are required for the wildlife resources VC provided in EIS section 14.6.

14.6 Monitoring and Follow-up

No changes are required to monitoring and follow-up for the wildlife resources VC in EIS section 14.7.

19. CURRENT USE OF LANDS AND RESOURCES FOR TRADITIONAL PURPOSES

19.1 Key Issues

Table 19-1 outlines a key issue regarding current use of lands and resources for traditional purposes raised by MLIB in the TLUS, and BC Hydro's approach to addressing it.

Table 19-1 Key issues: Current Use of Lands and Resources for Traditional Purposes

Key Issues	Approach to Addressing Key Issues
Site C will lead to further disruption in the Tse'khene's ancestral way of life: hunting/fishing; the Project will affect MLIB's ability to sustain hunting practices	• EIS Volume 3 Economic and Land and Resource Use Effects Assessment Section 19 Current Use of Lands and Resources for Traditional Purposes provides an assessment of the potential effects of the Project on the current and reasonably anticipated future use of lands and resources for traditional purposes, including the potential effects on hunting, fishing, trapping and other cultural and traditional activities (including harvest of berries and plants). Section 34 provides an assessment of Project impacts on the exercise of asserted or established Aboriginal rights and treaty rights. • The effects assessment undertaken in Section 19 and this Amendment Report draws on results of the effects assessment on fish and fish habitat, vegetation and ecological communities, and wildlife resources set out in EIS Sections 12, 13, and 14 of the EIS respectively, and Sections 12, 13, and 14 of this Amendment Report.

19.2 Baseline Conditions

The main MLIB community is located on Indian Reserves No. 1 and No. 5, located on opposite banks at the north end of McLeod Lake. MLIB has 21 Indian Reserves (Figure 2). In 2012, the band had 491 registered members (MARR 2012).

Thirty-nine (39) MLIB members were interviewed for the TLUS. Most interviewees live on-reserve (MLIB TLUS 2013: 38, 39). Fourteen of the people interviewed (36%) undertake traditional activities within the areas that may be affected by the Project. The majority of interview participants were young adults (MLIB TLUS 2013: v). Data from 12 interviews was recorded using the traditional use categories of transportation, habitation, fishing, hunting, gathering, and other heritage values.

The traditional ecological knowledge (TEK) of the Peace River region held by MLIB members is based upon cultural ties, historical use patterns, and contemporary use. Much of the TEK shared in the TLUS provides MLIB members' observations of changes to wildlife, fish, and habitat since the creation of the Williston reservoir.

The TLUS reports that MLIB members hunt and trap throughout their traditional territory and that their use of areas within the territory is affected by multiple factors including resource abundance and disturbance caused by industrial activities. Species hunted throughout their traditional territory include moose, elk, deer, bear, marmot,

beaver and rabbit. Birds hunted include grouse, ptarmigan, geese, and ducks (FMA Heritage in 2010 cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary; and MLIB 2013). Species trapped include beaver, squirrel, marten, mink, fisher, otter, lynx, wolves, coyote and fox (FMA Heritage Inc. 2010 cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary). The range of country foods consumption falls between 20% and 80%, as indicated by interview participants (MLIB TLUS 2013: 62, 68, 71-73).

The TLUS emphasizes that the majority of individuals currently using the RAA and LAA are young adults who travel to the area from McLeod Lake or further to stock up on their country food. The majority of interviewees who reported consumption of country foods, indicated eating primarily game and less fish, mostly due to concerns about methylmercury contamination. The MLIB have expressed concern that losing this resource area would have a direct economic effect on this group of young adults (MLIB TLUS 2103: vi).

Baseline conditions presented in the TLUS are summarized below.

19.2.1 Current Hunting and Trapping

The MLIB Map of Hunting shows large areas identified by MLIB as “the core hunting and gathering areas outside of the Site C Clean Energy Project” (MLIB 2013: 88). According to the TLUS, “the use areas mapped in the more southern portion of MLIB territory, while not exhaustive, reflect the overall pattern of use of the area by the MLIB” (MLIB 2013: 76).

Young MLIB hunters are reported to be experiencing a resurgence of hunting activity and a “push towards vitalizing traditional practices associated with cooking and preparing game” (MLIB 2013: 49). According to the TLUS, these young adults are “concerned about overhunting in the areas closer to their reserve and have begun to travel further from McLeod Lake and to incorporate more diversity into their hunting areas” (MLIB 2013: 50). They have found Del Rio and Taylor to be rich with game. The TLUS notes that many of the MLIB members’ hunting locations were inundated by the creation of the Williston reservoir and that families reported to hunt in the Peace River area appear to get most of their game from it (MNBC 2013: 76).

The TLUS identifies MLIB hunting in the following areas that are within the Current Use of Lands and Resources (Wildlife Resources) RAA (MLIB 2013):

- south side of the Peace River from Hudson’s Hope to Taylor north of the Pine River
- between Chetwynd and the east end of Moberly Lake east to the Pine River
- the lower reaches of Dunlevy Creek
- small areas around the lower Pingel Creek and Eight Mile Creek east of Taylor
- a small area south of the Halfway River Reserve (Figure 3).

Ungulates and Large Animals

The TLUS reports that MLIB members hunt moose, elk, mule deer and white-tailed deer on the south shore of the Peace River and along the transmission corridor, within the within the Current Use of Lands and Resources (Wildlife Resources) LAA (MLIB TLUS 2013: 48, Map of Hunting). Hunting areas in the RAA are listed above. One interviewee

reported using the south shore of the Peace River as his "main source of game animals, including elk, deer and moose, for the last seven years" (MLIB 2013: 62).

Wildfowl, Upland Birds and Other Birds

MLIB hunters consider waterfowl (Canada Goose, Mallard, Pintail, Blue and Green-winged Teal, and Greater and Lesser Scaup) to be abundant along the Peace River. Waterfowl are hunted on the wetlands north of the lower Moberly River, at the slough on the south side of the Peace River opposite Wilder Creek (Canada Goose, Mallard, Northern Pintail, Greater Scaup, Lesser Scaup, Blue-winged Teal, American Widgeon, and Green-winged Teal), and at the mouth of Halfway River (geese, Mallard, Northern Pintail, Teal) (MLIB TLUS 2013: 48, Map of Hunting). These areas are all within the Current Use of Lands and Resources (Wildlife Resources) LAA. Grouse (Sharp-tailed, Spruce and Ruffed) are hunted north of Monias Lake and in the Del Rio area. These areas are all within the Current Use of Lands and Resources (Wildlife Resources) RAA, and, depending on their exact location, may fall within the Current Use of Lands and Resources (Wildlife Resources) LAA.

One MLIB member reported that the Peace River is a source of the Blue-winged Teal and the Sharp-tailed Grouse, and that he has never noticed those species closer to McLeod Lake (MLIB 2013: 63).. Sharp-tailed Grouse are known to occur in upland habitats outside the LAA (pers. comm. BC Hydro May 21 and 22, 2013).

Summary

The MLIB TLUS indicates that MLIB members hunt the following species within an area the study defines as the "Site C Area":

- Dam Site Area: elk, moose, white tailed deer, Ruffed Grouse, Sharp-tailed Grouse, Spruce Grouse
- Transmission Line Corridor: moose, white-tailed deer, Ruffed Grouse, Sharp-tailed Grouse, Spruce Grouse
- New Access Permanent: moose, white-tailed deer, Ruffed Grouse, Sharp-tailed Grouse, Spruce Grouse
- Del Rio Pit: moose, white-tailed deer, ruffed grouse, Sharp-tailed Grouse, Spruce grouse.
- Borrow Area E: elk, moose, white-tailed deer, Ruffed Grouse, Sharp-tailed Grouse, Spruce Grouse (MLIB 2013: 74).

19.2.2 Current Fishing

MLIB members are reported to fish at numerous lakes and streams throughout their traditional territory (FMA Heritage Inc. 2010 cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary). The TLUS maps depict fishing activity in the Peace River from Hudson's Hope to the Alberta border. This area is within the Current Use of Lands and Resources (Fish and Fish Habitat) LAA. Bull trout, Dolly varden, and grayling are caught at the mouth of the Halfway River. MLIB members also reportedly fish outside the LAA at Dinosaur Reservoir (Rainbow trout and Dolly varden), Jackfish Lake, McLeod Lake, and on the lower Beatton River (MLIB TLUS 2013: Map of Fishing; MLIB TLUS 2013).

19.2.3 Current use of Plants, Trees and Additional Resources

MLIB members currently undertake a number of activities within their traditional territory, including berry and plant harvesting. Species include blueberries, soapberries, huckleberries, low bush and high bush cranberries, saskatoon berries, strawberries, raspberries, chokecherries, currants and gooseberries (FMA Heritage Inc. 2010 cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary). Berries are eaten fresh and either put in jars or frozen for later consumption.

Plants, including Labrador tea, mint tea, devil's club, strawberries, juniper, violet, fireweed, red willow, jack pine, balsam, pine bark and pine sap, are harvested for medicinal purposes, primarily from wetlands in the MLIB traditional territory (FMA Heritage Inc. 2010 cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary) In the past, trees were blazed or modified as markers on trails (FMA Heritage Inc. 2010: Sec. 7-19).

The TLUS indicates that MLIB harvesters gather on the lower Farrell Creek and lower Moberly River. This is within the Current Use of Lands and Resources (Wildlife Resources) LAA. The harvesting site at lower Farrell Creek is identified as a berry picking area (highbush cranberries, saskatoon berries, low and highbush blueberries, and raspberries) MLIB TLUS (2013). One interview reported that high bush cranberries grow along the edges of bigger rivers and that "other than harvesting these berries adjacent to the Moberly and Peace Rivers, she does not have good access to these berries anywhere else in MLIB territory" (MLIB 2013: 81). She does not indicate where on those rivers she harvests the berries. BC Hydro reports that high bush cranberries are common on the landscape and that they grow in upland and riparian forests and forested wetland ecosystems (pers. comm. BC Hydro May 21 2013).

The Gathering Map shows that MLIB harvesters are also gathering in the area of Halfmoon and Jackfish Lakes east of Moberly Lake (berries, medicine plants, Labrador tea) and to the east of that area (medicine plants). These areas are within the Current Use of Lands and Resources (Wildlife Resources) RAA.

19.2.4 Trails, Places and other Cultural Features

Trails were important historically for travel across the mountains from Fort McLeod to the east and to access trapline, hunting and gathering areas. MLIB members are reported to use a number of these trails and sections of others to access traditional use areas. Over a dozen trails are listed in the TLUS Report (MLIB 2013: 36, 37). The Rocky Mountain Portage Trail (heritage trail) extends from the east end of Williston Reservoir along the north side of the Peace River then to the south end of Charlie Lake, Fort St. John and onto Alberta. The sections of this trail on the north side of the Peace River may be in the Current Use of Lands and Resources (Wildlife Resources) LAA. The following trails are within the Current Use of Lands and Resources (Wildlife Resources) RAA:

- the Pine Pass Trail (heritage trail) follows the upper Moberly River to the western end of Moberly Lake then goes north to Hudson's Hope. A section of this trail splits off at the Pine River and extends to Chetwynd and Dawson Creek.
- one trail that splits off to the northwest west of Dawson Creek, extends to Sunset Prairie, Willow Valley, Favels Creek and ends west of the Pine River.
- one trail that extends from Dawson Creek to the Peace River east of Eight Mile Creek, and then extends east and west along the south shore of the Peace River. No further information is provided on this trail.

MLIB members have a number of cabins and camping areas throughout their traditional territory that they use when undertaking traditional activities, particularly trapping and hunting (FMA Heritage Inc. 2010: Sec. 7-17, 18). Within the Current Use of Lands and Resources (Wildlife Resources) LAA, MLIB members have a seasonal camp at the mouth of the Halfway River. A number of temporary habitation sites are located in the area north of Monias Lake, and there is one in the area of Fort St. John, and one at the mouth of Dunlevy Creek (MLIB TLUS 2013: Map of Habitation and Transportation). These are within the Current Use of Lands and Resources (Wildlife Resources) RAA.

TLUS interview participants identified the following heritage values along the entire Peace River valley from the east end of the Williston Reservoir to the Alberta border: Tse'khene cultural landscape, riverscape, historical connection, personal use. They also identified heritage values (undefined) in the area of Halfmoon and Jackfish Lakes; both are within the Current Use of Lands and Resources (Wildlife Resources) RAA (MLIB TLUS 2013: Map of Heritage Values).

19.3 Effects Assessment and Mitigation

Based on the review and consideration of key issues and baseline conditions related to the Current Use of Lands and Resources for Traditional Purposes VC provided in the TLUS, and the baseline and effects assessment described in the EIS and in Sections 12, 13, and 14 of this Amendment Report, changes are required to the effects assessment presented in Section 19.4 of the EIS.

The layout of this and subsequent sections of this Amendment Report mirrors the layout in the EIS effects assessment (Section 19.4). Where needed for the analysis, information from Section 19.4 was incorporated into the sections below. Please also refer directly to Section 19.4 for additional information on potential Project effects.

19.3.1 Effects Assessment – Construction – Change in Fishing Opportunities and Practices

<u>Current Use of and Access to Fishing Areas – Overview</u>

Information provided in the MLIB TLUS report and associated fishing maps suggests that MLIB preference is, for the most part, for whitefish, Dolly varden and Bull trout (MLIB 2013).

In the Current Use of Lands and Resources for Traditional Purposes (Fish and Fish Habitat) LAA, MLIB harvesters fish on the Peace River mainstem, with some fishing activity at the mouth of the Halfway River.

MLIB harvesters fish outside the Current Use of Lands and Resources for Traditional Purposes (Fish and Fish Habitat) LAA, including Dinosaur Reservoir, on the lower Beatton River, McLeod Lake and Jackfish Lake (MLIB TLUS 2013: Main report and Map of Fishing).

<u>Changes in Use of and Access to Fishing Areas During Construction</u>

Access restrictions described in EIS Section 19.4.1 pages 19-70 and 19-71 apply to the assessment of effects to MLIB's use of and access to fishing during construction. It is likely that access restrictions on the mainstem Peace River will limit the current fishing

practices of MLIB harvesters that fish in the Peace River. The following project interactions are of relevance, given the fish harvesting sites identified on TLUS maps:

- Boat passage within the dam site area will be permanently restricted at the beginning of Year 1 of construction;
- Boat access will be restricted above and below the Project construction zone through the entire construction period. The exclusion above the construction zone will include approximately 3 km;
- In Year 2, a debris collection boom to be installed in the vicinity of Wilder Creek, approximately 12 km from the dam site will restrict river travel;
- Although access to the Peace River upstream of Wilder Creek would be permitted through the final six years of construction, temporary restrictions would be imposed for occasional, specific project activities that take place;
- Both the Lynx Creek and Halfway River boat launches are proposed to remain open during construction through to reservoir filling (in Year 7), although temporary closures may occur; and
- Site C reservoir may be closed during reservoir filling due to debris and slope stability hazards.

Access restrictions on the mainstem Peace River may limit the current fishing practices of MLIB members, who are reported to fish Bull trout and Dolly varden (MLIB 2013: 74).

Access restrictions in the early years of the Project will begin to affect fishing at several confluences along the Peace River. Restricting access to the confluence of the Moberly and Peace River will begin at Year 1 of construction. Access to the mouth of Wilder Creek, and the area downstream to Moberly River will be altered in Year 2.

However, road and river access to the mouth of the Halfway River, a confluence explicitly noted as a fishing area by MLIB fishers in the TLUS, will not be restricted in the early years of the Project.

Reduced ability to access fishing areas due to project construction schedules and restrictions represents a potential effect on the current fishing practices of MLIB harvesters who currently use fisheries resources within the Current Use of Lands and Resources for Traditional Purposes (Fish and Fish Habitat) LAA. Use of the river will be fragmented, as travellers will be restricted from attempting to go either upstream or downstream of the proposed dam site from Year 1 of construction. Although the zone of exclusion begins in Year 1 at 3 km above the construction zone, river travel may be further impeded the following year by the boom to be installed at Wilder Creek, 12 km from the dam site. These restrictions may affect MLIB members, who, based on the TLUS, report current use of the area surrounding the proposed Project and immediate adjacent areas.

As indicated in EIS Section 19.4 page 19-71, Aboriginal fishers may adapt to Project-related restrictions on access by using other access points and fishing areas, such as the Peace River downstream of the Project dam site, the Pine River, Dinosaur Reservoir, or other areas in the region. The TLUS indicates that MLIB members are already fishing in several of these areas (MLIB 2013: Main report and Map of Fishing).

<u>Changes in Availability of Targeted Species During Construction</u>

As noted in EIS Section 19.4.1 pages 19-71 and 19-72, the effects assessment on fish and fish habitat (EIS Section 12) found that the construction of the Project may result in the following changes to fish and fish habitat, which are relevant to this VC:

- The construction of the dam and generating station, Highway 29 realignment and Hudson's Hope shoreline protection would result in the loss of 198.50 ha of fish habitat, primarily in the Peace River, but also in the Moberly River, including the following:
    - Spawning and rearing habitats for whitefish, suckers and minnows in the Moberly;
    - Feeding habitats for all adult species, in particular Goldeye and Pickerel in the Moberly;
    - Spawning, rearing, feeding habitats along the south bank of the Peace for all adult species; and
    - High quality habitats within the dam generation zone, including the north bank of the Peace, providing habitat for Arctic grayling and Mountain whitefish; and a channel along the north bank of the Peace providing habitat for Arctic grayling, Bull trout, Mountain whitefish, and Rainbow trout will be destroyed by the North Bank haul road.
- Highway 29 realignment will destroy 10.62 ha of fish habitat, mostly along the Peace River shoreline (.20 ha is along the Halfway River). Lost habitat includes feeding areas for bull trout along the Halfway River, and high quality spawning, rearing, or feeding habitats for mountain whitefish, Arctic grayling, Bull trout, Mountain whitefish, and Rainbow trout.
- Construction of the Hudson's Hope shoreline protection will destroy 6.12 ha of fish habitat along the Peace, including high-quality rearing, feeding, and/or spawning habitats for Bull trout, Rainbow trout, and Mountain whitefish. The Fish and Fish Habitat effects assessment notes that this section of the Peace River is used by lake trout for rearing, feeding, and/or spawning.
- Filling of the Reservoir will result in the loss of 28 km^2 of Peace River fish habitat and 1.63 km of habitat in tributary streams.
- Sediments introduced during construction activity associated with the Dam and Generating Station may affect fish health and survival.
- The construction of the headpond and filling of the reservoir may impact fish health and survival (12-70) through stranding of fish and fish entrainment.
- Sediments introduced during construction activity associated with the realignment of Highway 29 may affect fish health and survival.
- Increased Total Dissolved Gas (TDG) may impact the health and survival of fish during construction.
- Upstream fish movement may be impacted during the diversion stage of dam construction.

EIS Section 24 Harvest of Fish and Wildlife Resources, notes that several Project effects on movement and aquatic productivity during construction may affect fishing by the public. These effects would also be felt by MLIB harvesters.

Effects on movement and aquatic productivity may reduce fishing success by way of a direct impact on availability of targeted fishes, or they may alter fishing effort by limiting the availability of desirable fishing locations due to increased turbidity or the perception of disturbance.

Although boat travel up and downstream of the dam site will be disrupted from Year 1 on, it is projected that fish will pass through the dam site with no effect during channelization (Years 1-4). It is anticipated that fishing opportunities and practices may remain unaffected downstream of the dam site during this period.

During river diversion (Years 5-7), opportunities to harvest fish from the cold/clear water group (including bull trout, Arctic grayling, and mountain whitefish) are anticipated to decline. In the same period, no effect is anticipated on opportunities to harvest fish from the cool/turbid water group (including walleye, burbot, and northern pike). The cold water group – including bull trout – were indicated as harvested species by MLIB (MLIB 2013: 74). It is anticipated that, during the river diversion years, fishing opportunities and practices for the cold water group will diminish—this effect will be felt most acutely upstream on the Peace River and its tributaries in British Columbia.

Also during river diversion, anticipated changes in water quality and turbidity may affect cold water species from Cache Creek to Pine River confluence, as they seek to avoid turbidity. Again, this effect is likely to be experienced most acutely among British Columbia First Nation fishers.

Inundation and the creation of the reservoir will reduce opportunities for fishing in the main stem Peace River and at its tributaries between Fort St. John and the Peace Canyon Dam by reducing access to fishing areas at a number of confluences with the Peace including Cache Creek, Farrell Creek, the Moberly River, Halfway River. Fishing along the Peace River, including the confluences with other rivers, is depicted on the TLUS Map of Fishing. The mouth of the Halfway was the only confluence specifically mentioned as a fishing site in the TLUS report (MLIB 2013). Consequently, inundation will adversely affect the current use of lands and resources for fishing for MLIB. However, given the limited site specific information provided in the TLUS, it is difficult to understand the effects to MLIB.

Confluences downstream of the proposed dam site will be unaffected, including the Pine and Beatton. Similarly, other waterbodies within the LAA where fishing is currently conducted, including reservoirs and lakes, will be unaffected by the Project.

<u>Changes in Use of Harvested Species During Construction</u>

The MLIB TLUS does not provide information on how MLIB members use fish. However, it is reasonable to assume that that they use the resource for sustenance, recreational, and social purposes.

MLIB members indicated a reduced faith in country foods, including fish, beaver and moose meat, as they believe the quality of the resources to be compromised. This belief reportedly limits their desire both to go fishing in areas they believe to be less environmentally healthy, and to consume the fish (MLIB 2013).

MLIB interview participants expressed concern that the Project would cause contamination of fish in the Peace River and its tributaries. This concern is noted several times in the TLUS, and draws on experiences with the creation of the Williston reservoir. The Human Health Assessment (EIS Section 33), which draws upon the results of the Human Health Risk Assessment of Methylmercury in Fish Technical Data Report

(Volume 2, Appendix J, Part 2), indicates that commonly consumed species of fish upstream of the dam site (e.g. Rainbow trout, Bull trout), could be consumed by the most sensitive age groups (toddlers and children and women of childbearing age) one to two times per week without exceeding Health Canada's Tolerable Daily Intake for methylmercury. Fish species downstream of the dam site (e.g. Goldeye, Walleye) could be consumed by the most sensitive age groups one time per week and bull trout downstream of the dam site could be consumed two times per week. Comparing these results to reported baseline consumption frequencies of fish caught in the LAA (which indicate a relatively low frequency), the assessment concludes that people will not be required to change the frequency of consumption of fish that are caught from the LAA. This finding took into account results of Aboriginal harvest and consumption studies received prior to submission of the EIS. The baseline harvest and consumption information provided in the MLIB TLUS was described and considered in Section 33 of this Amendment Report.

19.3.2 Effects Assessment – Operation – Change in Fishing Opportunities and Practices

Changes in Use of and Access to Fishing Areas During Operations

Access management and restrictions described in EIS Section 19.4.2 page 19-74 apply to the assessment of effects to MLIB's use of and access to fishing during operations.

The discussion of the ability of Aboriginal fishers to adapt to and exploit new seasonal opportunities on the reservoir applies to MLIB harvesters that are accustomed to fishing on the Peace River. The MLIB TLUS indicates that MLIB members are currently fishing at Dinosaur Reservoir and on the upper reaches of the Williston Reservoir, however the use appears to be less intense in comparison with use of the main stem Peace (MLIB 2013). The TLUS indicates that MLIB members also currently fish closer to the McLeod Lake.

Where there is a benefit of greater opportunities for the public, this may be experienced by Aboriginal people, including MLIB members as an adverse effect of the Project to the extent that they feel their enjoyment of the practice of fishing is reduced.

Changes in Availability of Targeted Species During Operations

Changes to fish and fish habitat described in Section 19.4.2 page 19-74 to 19-76 apply to the assessment of effects to MLIB fishing during operations.

Changes in species availability may affect MLIB fishers at different times after the reservoir has been created, however, the level of information provided by MLIB does not allow for a species by species analysis.

Changes to the fish community in the reservoir would affect Aboriginal fishing into the medium term. Although Bull trout is reported to be harvested by MLIB, other species projected to increase (Lake trout, Kokanee, and whitefish) were not identified by MLIB as harvested species. In the long term, all harvesters using the reservoir could be expected to adjust to the predicted dominance of Kokanee or whitefish, although the timing of such an adaptation is uncertain.

Changes in the fish community composition throughout the LAA, and the length of time the reservoir and downstream environs takes to reach a stable state supporting a fishery, would affect the success of Aboriginal fishers, including MLIB harvesters. Decisions to use the reservoir or not may depend on several factors, including likelihood

of success for effort expended.[1] Aboriginal fishers, including MLIB, who currently use the Peace River, may avoid the reservoir and downstream areas until it becomes equally profitable to fish in those locations as it may in an alternate area. The adaptation of a new reservoir fishery may mirror the development of the fish community within the reservoir in terms of the time it takes to adapt.

These effects would be felt by MLIB harvesters who currently use the LAA, as follows:

- A relative increase in kokanee and lake trout downstream of the dam poses an adaptive challenge to Aboriginal fishing practices, as neither appear to be target species for MLIB currently; and
- A decrease in the availability of bull trout would affect MLIB, who indicated harvest of bull trout in the TLUS.

Changes in Use of Harvested Species During Operations

The changes in use of harvested species would carry over from construction.

19.3.3 Mitigation Measures – Change in Fishing Opportunities and Practices

The mitigation measures set out in Section 19.4.3 of the EIS would mitigate effects on MLIB fishing for traditional purposes. No changes or additional mitigation measures are required.

19.3.4 Effects Assessment – Change in Hunting and Trapping Opportunities and Practices during Construction and Operations

The TLUS does not identify trapping activities in the LAA. As a result, trapping is not carried through the effects assessment.

Changes in Use of and Access to Hunting Areas During Construction

Assessment of potential Project effects on the ability of Aboriginal harvesters to access hunting areas during construction are brought into this Amendment report from EIS Sections 4, 24 and 26, as well as the results of Section 14 in this Amendment report.

Alterations in access that may affect MLIB harvesting would involve both changes to navigation on the Peace River and its tributaries as well as changes to access roads in the Project area. Access-related changes to hunting and non-tenured or subsistence trapping opportunities and practices described in EIS Section 19 are applicable to the assessment of effects on MLIB (see page 19-78).

The Project will alter the existing access network utilized by MLIB hunters to harvest wildlife resources. The Project would affect the ability of MLIB hunters to use existing access networks such as the Peace River in the area of the Project (which is used as a transportation route by MLIB (MLIB 2013: Map of Transportation).

Water-based navigation will be restricted in the area of the Project dam site at the beginning of the construction phase. Areas both up and downstream of this restricted area will remain navigable, and may be accessed from boat launches at Lynx Creek, Halfway River, and Hudson's Hope in the beginning of the construction phase.

[1] This text differs from the text in the EIS, which will be revised in the errata as described in BC Hydro's letter to the BC Environmental Assessment Office and the CEA Agency dated May 8, 2013.

Opportunities to access the river will be temporarily reduced when construction activities close the Hudson's Hope boat launch in Year 5. With inundation, all existing boat launches including Halfway River and Lynx Creek would become permanently unavailable. Until new boat launches are opened for use on the reservoir, there would be an adverse effect on access to water-based navigation.

Downstream of the dam, the Pine River would be unaffected.

Although provision of access and navigation downstream of the dam site will be unaffected during construction, harvesters who are accustomed to using the Peace River as a transportation corridor between the Peace Canyon Dam and stretches downstream of Fort St. John will have to transport their boats around the dam site.

Construction activities will create a new temporary road access network that may be used by all hunters, and poachers, to access wildlife. This is described in EIS Section 19 page 19-79.

Increased access during construction represents both a benefit and an adverse effect to Aboriginal hunters in the LAA, including MLIB harvesters. It opens up previously inaccessible areas to Aboriginal harvesting, but also to increased competition from other hunters, and poaching. This was raised as a concern by MLIB harvesters.

According to EIS Section 4 Project Description, these roads will be reclaimed or inundated after clearing. In the consideration of public hunting, EIS Section 24 indicates that these roads could be used by hunters to access formerly inaccessible areas within the LAA. However, this effect will only be temporary.

Site preparation and earthworks at Del Rio Pit may affect the use of lands for hunting of MLIB, who identified hunting values near the site (moose, white tailed deer, ruffed grouse, sharp-tailed grouse, spruce grouse).

<u>Changes in Use of and Access to Hunting Areas During Operation</u>

Access-related changes to hunting and non-tenured and subsistence trapping opportunities and practices during operation described in EIS Section 19.4.4 pages 19-79 and 19-80 apply to the assessment of effects to MLIB's use of and access to hunting areas during operation.

<u>Changes in Availability of Targeted Species During Construction and Operation</u>

The assessment of changes in availability of targeted species draws on the effects assessment in EIS Section 14 and follows that Section's structure in treating construction and operation phases together.

The following species were referenced in the TLUS and were also used as indicator groups in EIS Section 14, Table 14.4:

- elk, moose and white tailed deer (ungulates)
- Sharp-tailed Grouse and Ruffed Grouse (non-migratory game birds)
- ducks and geese (waterfowl)

For the full list of indicator groups assessed, and rationale for their inclusion in the EIS, see EIS Section 14. Secondary sources contain a more detailed list of individual species harvested by MLIB members (FMA 2012 cited in cited in EIS Volume 5 Appendix A15 Part 3 Aboriginal Land and Resource Use Summary), however, there is no indication of whether those species are harvested within the LAA or RAA and these species were not

mentioned in the TLUS as being harvested within the LAA or RAA. As a result, they were not brought forward in the assessment on current use of land and resources for traditional purposes.

EIS Section 14 Wildlife Resources describes the following potential effects on key indicators that are relevant to the current use of lands for hunting and non-tenured or subsistence trapping by Aboriginal persons: habitat alteration, disturbance and displacement, and mortality.

EIS Section 14 predicts that habitat alteration would be the "primary effect on wildlife resources". Consequently, habitat alteration is the most relevant to an assessment of potential Project effects on current use of lands and resources for traditional purposes with respect to opportunities and practices for hunting and trapping. Construction phase activities have the potential to induce habitat alteration and fragmentation through site clearing and preparation and other activities that will be undertaken to construct the dam generating station and spillways, reservoir, transmission line, Highway 29 realignment, and construction of access roads. According to EIS Section 14, most of the effects of the Project on wildlife resources will occur during the construction phase.

Wildfowl, Upland Birds and Other Birds

Waterfowl (migratory birds) would be affected by construction activities through the loss of habitat due to alteration and fragmentation, disturbance and displacement, and mortality, mostly through transformation of the river into a reservoir. Ice formation patterns in the future reservoir will change staging areas for some species.

The MLIB TLUS indicates that MLIB hunt waterfowl in areas that lie within the LAA.

Depending on its exact location, the waterfowl (Canada Goose, Mallard, Pintail, Blue and Green Wing Teal, and Greater and Lesser Scaup) hunting area identified in the TLUS at the slough on the south side of the Peace River opposite Wilder Creek may be within the inundation zone and will be affected, first by access restrictions after Year 1, and afterward by reservoir creation. Waterfowl hunting by MLIB members on the wetlands north of the lower Moberly River may also be affected by creation of the reservoir, depending on the exact location.

The Project is not expected to have measurable effects to the Blue and Green Wing Teal, species indicated by MLIB as only being available at the Peace River. Teal are not rare in the LAA, are expected to continue to be available after the Project is constructed, and would likely use the river downstream of the dam and reservoir (pers.comm. BC Hydro. May 17, 2013).

The TLUS identified that MLIB members also hunt non-migratory birds, in particular Sharp-tailed, Spruce and Ruffed Grouse, in the LAA. Hunting of these species at Monias Lake would not be affected by the Project.

Sharp-tailed Grouse and Ruffed Grouse would be affected by loss of habitat, habitat fragmentation, disturbance and displacement via construction activities, direct and indirect mortality (construction activities, flooding, equipment and vehicle collisions), and potentially increased hunting. Noise and physical disturbance from construction and operation activities at Del Rio Pit, along the transmission route and at the dam site have the potential to disturb or displace Grouse.

While these changes may affect MLIB's hunting of Sharp-tailed Grouse and Ruffed Grouse in specific areas, the Project is not expected to have a measurable effect on Sharp-tailed or Ruffed Grouse, the species will continue to occur in upland habitats outside the LAA, and it is anticipated that effects will dissipate with time.

Small Game and Furbearers

No hunting or trapping of small game and furbearers was identified in the TLUS.

Ungulates

Loss of habitat is predicted to affect ungulates in the LAA, principally through a projected loss of winter areas, or disturbance during winter. Ungulates include moose, elk, mule and whitetail deer (caribou were excluded from the wildlife resources assessment; see Section 14 Table 14.2 Rationale for the Exclusion of Suggested Species). Adult ungulates are highly mobile, and it is anticipated that the Project may induce some movement of ungulates away from the Project area. Construction activities may induce direct and indirect mortality. It is anticipated that new temporary access roads will reduce suitable habitat and food sources for ungulates, fragment their habitat, and lead to direct mortalities through vehicular collisions. While these effects are anticipated to occur during construction, no significant residual effects to ungulates as a result of the Project are predicted (EIS Section 14 Wildlife Resources).

Moose, elk and white-tailed deer are harvested by members of the MLIB (MLIB 2013). There will be no change in white-tail deer availability and elk will continue to increase without a large change (EIS Section 14). Moose may see a decline of 5% in population due to the Project. Reduction in moose availability in the LAA would affect MLIB harvesting in the area.

Ungulate harvesting areas in the path of the future transmission line and between the south bank of the Peace River and the transmission line would be affected by increased access and competition from non-Aboriginal hunters. Site preparation and earthworks, and associated noise, at Del Rio Pit will also affect MLIB's harvest of ungulates.

The TLUS maps indicate that MLIB members continue to hunt outside the LAA, however, the TLUS report indicates that that the Peace River has recently become a favored hunting area for young MLIB harvesters (MLIB 2013).

Large Carnivores

The TLUS did not identify hunting of large carnivores.

19.3.5 Mitigation Measures – Change in Hunting and Trapping Opportunities and Practices

The mitigation measures set out in Section 19.4.5 of the EIS would mitigate effects on MLIB hunting and trapping for traditional purposes. No changes or additional mitigation measures are required.

19.3.6 Effects Assessment – Change in Cultural and Traditional Uses of the Land

Potential Project effects on other cultural and traditional uses of the land are assessed in EIS Section 19.4.6.

The MLIB TLUS identifies other cultural and traditional uses of the land including habitation sites, berries, medicinal plants, and transportation routes .

Changes in Other Cultural and Traditional Uses of the Land During Construction

Habitation Sites (Cabins and Campsites)

MLIB has identified a seasonal camp at the mouth of the Halfway River that appears to be in the area that will be inundated when the reservoir is filled. However, this would depend on its exact location. MLIB has identified other habitation sites within the RAA.

Cultural and Spiritual Places

The MLIB TLUS depicts "heritage values" (Tse'khene cultural landscape, riverscape, historical and spiritual connection and personal use) along the entire Peace River valley from the east end of the Williston Reservoir to the Alberta border. According to the TLUS, MLIB members use the Peace River as a place for prayer and gatherings (Bear Flats), story-telling, and inter-generational transfer of knowledge (MLIB 2013: 89). These areas identified by MLIB as having heritage values would be disturbed by the loss of landmarks and the transformation of the Peace River into a reservoir. This information is geographically broad and does not allow for an assessment of the Project's effects.

Berries, Herbs and Medicinal Plants

The effects assessment on opportunities and practices to harvest resources for traditional purposes for MLIB draws on the assessment undertaken in EIS Section 19, the biophysical effects described in EIS Section 13 Vegetation and Ecological Communities and Section 13 of this Amendment Report. The effect pathways described in EIS Section 19.4.6 page 19-88 also apply to the assessment of effects to MLIB.

MLIB reported harvesting various food plants in the LAA.

MLIB harvesters indicated they gather on the lower Farrell Creek and lower Moberly River (MLIB 2013). The lower Farrell Creek area, depending on its exact location, may be altered or lost during highway realignment and then possibly inundated. The lower Moberly River area, depending on its exact location, may possibly be inundated.

One MLIB TLUS interview participant indicated that high bush cranberries are only accessible adjacent to the Moberly and Peace Rivers. The TLUS does not specify the gathering area in enough detail to determine its relationship to the LAA or to enable an effects assessment. However, cranberries are common on the landscape. EIS Section 13 Table 13.6, page 13-12, indicates that cranberries grow in upland and riparian forests and forested wetland ecosystems.

The TLUS indicates that MLIB members currently harvest outside the LAA.

Trails, Water Routes and Transportation Routes

MLIB identified water routes on the Peace River and the Williston Reservoir as their main transportation routes (MLIB 2013 Habitation and Transportation Map).

Transportation lines depicted in the TLUS within the Peace River will be submerged and fragmented by the dam site.

The MLIB TLUS lists over a dozen trails in the TLUS Report (MLIB 2013: 36, 37), the majority of which are outside the LAA. Some sections of the Rocky Mountain Portage Trail, which extends from the east end of Williston Reservoir along the north side of the Peace River then to the south end of Charlie Lake, Fort St. John and onto Alberta, may be within the LAA. Depending on the exact location of the trail, it will be inundated.

The Rocky Mountain Portage Trail is described in detail in Section 6.2.1.1.1.7 of the Heritage Report (EIS Volume 4 Appendix C).

Changes in Other Cultural and Traditional Uses of the Land During Operations

It is anticipated that the effects on other cultural and traditional uses of the land induced during construction would continue during the Operations Phase. The discussion of effects at EIS Section 19, page 19-89 applies to MLIB's use of other cultural and traditional uses.

Changes in Use of and Access to Culturally Important Places and Valued Landscapes During Construction

The MLIB TLUS refers to the entire Peace River as being valued as a special place. It has recently become a favored hunting location for many band members and reportedly has heritage, cultural and spiritual importance to MLIB members (MLIB 2013). Based on information provided in the MLIB TLUS, it appears that, of the many "culturally important places" identified on page 19-90 of the EIS Section 19, the confluence of the Halfway River is a cultural use area where MLIB has identified multiple uses (fishing, hunting, camping). This area will be inundated. Monias Lake is identified for gathering and hunting, however this is outside the flood zone, and the multiplicity of uses it hosts revolve around current use activities without the emphasis on cultural and/or spiritual uses coupled with oral historical traditions that are attached to the Peace River.

Changes in Use of and Access to Culturally Important Places and Valued Landscapes During Operations

It is anticipated that the effects on use of and access to culturally important places and valued landscapes induced during construction would continue during the Operations Phase, as the confluence of the Halfway River with the Peace River will be inundated. As noted in EIS Section 19 page 19-91, it is possible that other gathering places may be reconstituted at the confluences of the old creeks and the new lake. It is also possible that MLIB harvesters will shift their attention outside the area of the Project to other special places within their asserted traditional territory.

19.3.7 Mitigation Measures – Construction and Operations – Change in Cultural and Traditional Uses of the Land

The mitigation measures set out in Section 19.4.7 of the EIS would mitigate effects on changes in cultural and traditional uses of the land. No changes or additional mitigation measures are required.

19.4 Residual Effects

The criteria used to characterize residual effects on current use of lands and resources for traditional purposes for the MLIB are presented in Section 19.5 Table 19.13, page 19-100.

19.4.1 Current Use of Lands and Resources for Traditional Purposes – Fishing

After proposed mitigation, Project construction would have a residual adverse effect on MLIB's current use of lands and resources for fishing due to reduced access to fishing areas and potentially reduced success in harvest of targeted species.

During operations, MLIB fishing would be adversely affected due to reduced access to some fishing areas. Over time, as the reservoir develops into a stable fishery and local knowledge develops about how to practice fishing there, the Project may have a beneficial effect on fishing opportunities. However, it is not certain when these conditions may occur.

The effect would be of low to moderate magnitude for MLIB. Although some aspects of the traditional purpose of the activity may be altered by transferring them to another location, fishing practices of Aboriginal people are adaptable, spatially and temporally. Fishing currently undertaken in the area of the proposed reservoir may be done, and MLIB is already fishing in Dinosaur Reservoir, downstream of the Peace, McLeod Lake and other areas that will not be affected by the Project.

The geographic extent of the effect would be local, as it is confined within the LAA. The effect would be continuous, at least until the reservoir stabilizes and Aboriginal fishing practices adapt to the post-project environment, and not reversible, although fishing practices are adaptable to it. The effect is long term and there is uncertainty around the time sufficient to re-establish a stable fishery resource, coupled with a body of knowledge and a set of practices about its exploitation.

The geographical and environmental setting for fishing can be described as disturbed, although some elements of the setting remain undisturbed or resilient. The confidence level in the assessment is low, because the assessment is restricted by limited TLUS data, uncertainty regarding the biophysical effects of the Project, uncertainty regarding reactions of the environment and responses to change by MLIB harvesters. If the Project proceeds, the effect is likely to occur.

19.4.2 Current Use of Lands and Resources for Traditional Purposes – Hunting and Trapping

The current use of lands and resources for hunting by MLIB will be adversely affected by the Project. The TLUS does not identify trapping activities in the LAA and therefore, trapping was not carried through the effects assessment.

Hunting opportunities and practices will be negatively altered in comparison to baseline trends within the LAA during the construction of the Project. The effect would be of low to moderate magnitude for MLIB. While the TLUS report indicates that the Peace River valley has become the preferred place for MLIB, MLIB hunting is also depicted outside the LAA. In addition, there will be no measurable effects to target species that MLIB members indicated are only available in the Peace River area (Teal, Grouse). The geographic extent of the effect would be local, as it is confined within the LAA. The effect would be temporary, at least until access restrictions are lifted within the reservoir and animals and Aboriginal hunting and non-tenured trapping practices adapt to the post-project environment. The effects are reversible, and are short-term. The geographical and environmental setting for the indicator can be described as disturbed, although some elements of the setting remain undisturbed or resilient. MLIB members indicate that the area is of high importance and is used for hunting and trapping multiple wildlife species. The confidence level in the assessment is low, as the assessment is

restricted by limited TLUS data, uncertainty regarding the relationship between biophysical effects of the Project, reactions of the environment, and responses to change by MLIB members. If the Project proceeds, it is likely that an adverse effect would occur because the physical changes in the Project activity zone, particularly Site C reservoir filling and habitat loss and fragmentation, and changes to access, would alter hunting opportunities at least in the short term.

19.4.3 Current Use of Lands and Resources for Traditional Purposes – Other Cultural and Traditional Uses

The Project would have a residual adverse effect on other cultural and traditional uses of the land for MLIB.

The effect on other cultural and traditional uses of the land is adverse, as the nature of the indicator is negatively altered in comparison to baseline trends. Opportunities to use the Halfway river at the confluence of the Peace River for the conduct of multiple current use and cultural activities will be negatively altered. The effect would be permanent and the magnitude would be high for MLIB, for this specific location. The geographic extent of the effect is local. The effect will occur once (inundation) and will be permanent. The geographical and environmental context for the effect is disturbed. The confidence level in the assessment is low given the limitations of the TLUS. . If the Project proceeds, an adverse effect is likely to occur because changes in the Project activity zone would inundate or alter the area.

19.5 Standards or Thresholds for Determining Significance

The thresholds for determining significance are set out in Section 19.4.5, page 19-105.

19.6 Determination of Significance of Residual Effects

The significance of the potential residual adverse effects of the Project on this the Current Use of Lands and Resources VC has been assessed as follows:

Current Use of Lands and Resources for Traditional Purposes – Fishing
The effect on current use of lands and resources for fishing would be adversely altered by the Project. Although some aspects of the traditional purpose of the activity may be altered by transferring them to another location, fishing practices of Aboriginal people, including MLIB, are adaptable, spatially and temporally. The effect on current use of lands and resources for fishing is not significant.

Current Use of Lands and Resources for Traditional Purposes – Hunting and Trapping
The effect on hunting and trapping opportunities and practices would be adverse, however, the traditional purpose of the activity would not be undermined. The Project effect on current use of lands and resources for hunting and trapping (non-tenured) is not significant.

Current use of Lands and Resources for Traditional Purposes – Other Cultural and Traditional Uses

After proposed mitigation, the Project would have a residual adverse effect on other cultural and traditional uses of the land. Due to permanent loss of use of and access to an area used for fishing, hunting and camping at the confluence of the Halfway River, the use of that area will be permanently impaired. Based on information provided in the

TLUS, the effect on other cultural and traditional uses would be significant for MLIB at the confluence of the Peace River with the Halfway River.

19.7 Cumulative Effects Assessment

The baseline information and effects assessment undertaken in this Amendment Report does not alter the results of the cumulative effects assessment for the Current Use of Lands and Resources for Traditional Purposes VC in EIS section 19.6 of the EIS. No residual Project effect on MLIB would overlap with the residual effects of the projects considered in the cumulative effects assessment (EIS section 19.6).

19.8 Monitoring and Follow-up

No changes are required to the monitoring and follow-up described in Section 19.

32. Heritage Resources

32.1 Key Issues

The MLIB TLUS does not raise any new issues or concerns related to the heritage resources VC not already included in section 32 of the EIS.

32.2 Baseline Information

The MLIB TLUS describes heritage resources that are important to MLIB members. The MLIB TLUS classifies these resources into “cultural heritage resources”, “archaeological sites” and “intangible cultural heritage”.

The archaeological component of the TLUS includes an Archaeological Overview Assessment (AOA) using information obtained from the Remote Access to Archaeological Data (RAAD) database maintained by the BC Archaeology Branch and several GIS-based archaeological predictive models. A review of archaeological assessments completed for BC Hydro’s existing hydroelectric developments and for earlier and current versions of the Site C Project is also included in the report. The TLUS report states that data from the current Site C heritage resources program was not included because it was not available. However MLIB had received the following prior to submission of the MLIB TLUS to BC Hydro:

- Heritage Conservation Act permit applications in 2010 and 2011, which included the archaeological potential model developed for the Project and a detailed description of the field work methodology. The Archaeology Branch referred the permit applications to MLIB for review and comment.
- Reports for heritage field work completed in 2010 and 2011.
- Section 32 and Volume 4 Appendix C of the EIS (January 2013) summarise results of the heritage resources program completed between 2010 and 2012.

The TLUS notes that “241 sites [have been] recorded within only 12% of the entire impact zone” but does not define “the entire impact zone”. The TLUS report included a section titled “Archaeological assessments within MLIB Traditional Territory Expected to be Indirectly Impacted by the Site C Clean Energy Project’s Development Activities” (TLUS section 3.1.2). This section notes that there are 1,434 archaeological sites recorded within the MLIB traditional territory, and generally describes the nature of the sites, however the section does not state that any of the sites within MLIB traditional territory would be affected or indirectly impacted by the Project.

The summaries and quotes provided in Section 3.3.1 Local Knowledge Documentation/Oral History Interviews of the TLUS do not include specific information about archaeological or historical sites or information that could assist in locating archaeological and historical sites. There is one reference to graves (p. 52), but the precise location is not specific enough to determine its relationship to the LAA.

32.3 Effects Assessment

Based on the review and consideration of baseline information related to the heritage resources VC provided in the MLIB TLUS, and the baseline and effects assessment described in EIS section 32, no changes are required to the results of EIS section 32 and the mitigation identified in EIS section 32 is appropriate, for the following reasons:

- The TLUS offers no new information on archaeological resources within the LAA.
- The information provided in the TLUS is not specific enough to locate additional heritage sites. The descriptions of use do not provide sufficient detail and the accompanying maps do not permit accurate plotting of sites.
- The ethno-historical information provided in the TLUS is consistent with what has been presented in Volume 4 Appendix C.

32.4 Residual Effects

No changes are required to the residual effects for the heritage resources VC provided in EIS section 32.

32.5 Cumulative Effects Assessment

No changes are required to the cumulative effects assessment for the heritage resources VC in EIS section 32.

32.6 Monitoring and Follow-up Programs

No changes are required to monitoring and follow-up for the heritage resources VC in EIS section 13.6

33. HUMAN HEALTH

33.1 Key Issues

Table 33-1 outlines two new key human health issues raised in the MLIB TLUS, and BC Hydro's approach to addressing these issues.

Table 0-1 New Key Issues: Human Health

Key Issues	Approach to Addressing Key Issues
Concern that the Site C dam might increase mercury levels in the area's fisheries, and the need to limit fish consumption due to perceived contamination.	Health risks related to the consumption of fish are addressed in EIS Section 33 Human Health
Concern that beaver would be contaminated from eating fish from the reservoir, or other wildlife that may live in and around the contaminated waters of the reservoir.	The Mercury Human Health Risk Assessment (Volume 3, Appendix J Mercury Technical Data Report Part 2), and the Human Health Assessment Section 33 of the EIS focused on the potential for the Project to result in change in country foods, reduced consumption and methylmercury concentrations in fish consumed by humans. As indicated in the Mercury Human Health Risk Assessment and the Human Health Assessment, with the possible exception of piscivorous birds, fish are expected to be the only country food item that will increase in methylmercury concentration as a result of the Project. Potential risks from consumption of piscivorous wildlife are expected to be lower than from fish consumption, as available data suggest that humans rarely consume piscivorous wildlife within the Project area.

33.2 Baseline Conditions

Maps representing TLUS information – including habitation sites - were provided in the MLIB TLUS. A total of thirty-nine oral history interviews were undertaken with MLIB community members. Interviews included documentation of traditional use and knowledge, including hunting, fishing, trapping and gathering activities. Section 3.4 of the TLUS outlines the current use of the Project area for traditional purposes.

The TLUS identifies areas used as temporary habitation sites and for other temporary land uses by MLIB members. These include a number of cabins and camping areas throughout their traditional territory that they use when undertaking traditional activities, particularly trapping and hunting (FMA Heritage Inc. 2010: Sec. 7-17, 18). The Habitation and Transportation Map (MLIB TLUS, 2013) identifies the general location of a number of habitation sites and habitation use areas in proximity to the Project including a seasonal camp at the mouth of the Halfway River (in vicinity of the proposed Borrow Area E) and a temporary habitation site is indicated in the area of Fort St. John (in vicinity of the Dam Site). Table 7 of the TLUS study indicates the use of an undisclosed location on the bank of the Peace River for personal prayer and that the reservoir (area not specified) is used for gathering places. As indicated in the TLUS the maps provided represent TLUS information for 12 of the 40 band members consulted for the TLUS.

The TLUS identifies country food usage of MLIB members in the vicinity of the Project. Table 4 of the TLUS study indicates that the proposed reservoir and proposed dam site area are used for fishing. Eleven interviewed community members use the Site C area,

with two individuals cited as having the most intensive use of the area who get most of their game from the area (p. 72). MLIB members fish in the Peace River from Hudson's Hope to the Alberta border. This area is within the Current Use of Lands and Resources (Fish and Fish Habitat) LAA. Bull trout and Dolly Varden are identified as fish species caught in the summary of current use for traditional purposes, and interviewees also mention fishing for rainbow trout, and Arctic grayling on the Peace River, in the vicinity of Hudson's Hope, the Halfway River and the Moberly River.

Country food consumption is described for some interviewees, including the species and levels of country food consumption. The rate of country food consumption of meat and fish included values of 20%, 25%, 33%, 40%, 55%, 70%, 80%, and "every day". Species consumed include beaver, moose, elk, fish, chicken (grouse). Several interviewees indicated that they limit their consumption of fish due to concerns about mercury contamination. Some interviewees indicated they also limit their consumption of beaver due to concerns about mercury contamination.

Baseline information on quantities of fish caught or consumed was not provided in the MLIB TLUS.

33.3 Effects Assessment and Mitigation

Based on the review and consideration of key issues and baseline information related to the Human Health VC provided in the MLIB TLUS, and the baseline and effects assessment described in the EIS, no changes are required to the results of the effects assessment as described in EIS section 33.4.

Because information provided in the MLIB TLUS does not enable the determination of whether Aboriginal habitation sites identified in the MLIB TLUS are located within the local study areas for ambient air quality or noise and vibration, an additional mitigation measure is proposed. With reference to mitigation measures as described in Section 33.4.4 in the EIS (Mitigation Measures – Changes in Ambient Air Quality) and Section 33.4.6 in the EIS (Mitigation Measures – Changes in Noise and Vibration) the specific location of MLIB Aboriginal habitation sites (and other Aboriginal habitation sites) will be taken into consideration in the development of the Air Quality Management Plan and in the Noise and Vibration Management Plan for the Project. These management plans will include the following:

- Work with Aboriginal communities to identify specific locations of Aboriginal habitation sites that may be sensitive human receptors in relation to the Project activity zone and local study areas for ambient air quality and noise and vibration;
- If Aboriginal habitation sites that may be sensitive human receptors are located within the local study areas for ambient air quality and/or noise and vibration, determine potential changes in ambient air quality and/or noise and vibration at these sites as a result of the Project;
- If ambient air quality or noise and vibration changes at Aboriginal habitation sites are predicted to exceed BCOGC Guidelines for noise or ambient air quality objectives, BC Hydro will implement appropriate mitigation measures.

33.4 Residual Effects

No changes are required to the residual effects for the human health VC in EIS section 33.6.

33.5 Cumulative Effects Assessment

No changes are required to the cumulative effects assessment for the human health VC in EIS section 33.7.

33.6 Monitoring and Follow-up

No changes are required to monitoring and follow-up for the human health VC in EIS section 33.8.

34. ASSESSMENT OF POTENTIAL IMPACTS ON THE EXERCISE OF ASSERTED OR ESTABLISHED ABORIGINAL AND TREATY RIGHTS

34.1 Potential Impacts on the Exercise of Asserted Rights

MLIB asserts that it uses the Peace River valley and the LAA for current use activities including hunting, trapping, and fishing.

Based on the review and consideration of baseline conditions related to the current use of lands and resources for traditional purposes VC provided in the TLUS, the baseline and effects assessment described in EIS Section 19, and BC Hydro's understanding of asserted Aboriginal treaty rights set out in EIS Section 34.3.2.1, an assessment of potential impacts on the exercise of MLIB Treaty rights is required. The methodology for assessing impacts on the exercise of treaty rights is set out in EIS Section 34 and the Technical Memo Methodology for the Assessment of the Potential Impacts of the Project on the Exercise of Asserted or Established Aboriginal and Treaty Rights.

Right to fish

MLIB's treaty right to fish applies throughout Treaty 8 territory. The Project would reduce the ability MLIB to exercise its treaty right to fish (Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes) in the LAA, during both construction and operation. Opportunities for boat and shore-based river fishing along an 85-kilometre stretch of the Peace will be reduced. Several fishing areas where streams and creeks join the Peace River, will be inundated, although the confluences of those streams with the new reservoir may develop into good fishing areas. The impact of the creation of the dam will diminish as the reservoir begins to create a new fishery. However, it is not certain when these conditions may occur. As indicated in EIS Section 19, other fishing areas currently used by MLIB would not be affected by the Project, and the reservoir would, in time, create compensatory fishing opportunities for MLIB. No cumulative effects of the Project were identified with respect to fishing for traditional purposes (EIS Section 19 Current Use of Lands and Resources for Traditional Purposes). MLIB members will continue to have the opportunity to exercise their right to fish within the fish and fish habitat LAA, within their traditional territory, and within the wider Treaty 8 territory.

Rights to hunt and trap

MLIB's treaty rights to hunt and trap apply throughout Treaty 8 territory. The Project would reduce the ability of MLIB to hunt and trap in the Current Use of Land and Resources (Wildlife Resources) LAA during construction and operation (Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes). The construction of the Project would have temporary effects on the ability of MLIB harvesters to access some parts of the LAA for hunting and trapping via road or river navigation. New access will be created around the reservoir. Opportunities to harvest the waterfowl, migratory game birds and ungulates identified as harvested species by MLIB will be reduced in the short term. Effects on MLIB hunting and trapping would be

temporary and hunting and trapping areas outside the LAA would not be affected by the Project. Several highly valued locations for hunting, trapping and other harvesting would be inundated. No cumulative effects of the Project were identified with respect to hunting and trapping for traditional purposes (Volume 3 Section 19 Current Use of Lands and Resources for Traditional Purposes). MLIB members will continue to have the opportunity to exercise their rights to hunt and trap within the LAA, within their traditional territory, and within the wider Treaty 8 territory.

34.2 Aboriginal Accommodation

No changes are required to the Aboriginal Accommodation described in Section 34.4 of the EIS.

34.3 Outstanding Aboriginal Issues

No changes are required to the discussion of outstanding aboriginal issues in Section 34.5 of the EIS.