SITE C CLEAN ENERGY PROJECT

VOLUME 5 APPENDIX A06 PART 5

TLUS PUBLIC REPORT:
DOIG RIVER FIRST NATION

FINAL REPORT

Prepared for BC Hydro Power and Authority

Prepared by Doig River First Nation, Prophet River First Nation
Halfway River First Nation, West Moberly First Nations

March 2012

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Doig River First Nation, Prophet River First Nation, Halfway River First Nation, and West Moberly First Nations

Traditional Land Use Study (TLUS) Data and Methodology Report

for

BC Hydro's Proposed Site C Project

March 28, 2012

Craig Candler (Ph.D) and the Firelight Group Research Cooperative with the Treaty 8 Tribal Association (T8TA)

Doig River First Nation, Prophet River First Nation,West Moberly First Nations, and Halfway River First Nation Land Use Study Data and Methodology Report For BC Hydro's Proposed Site C Project

Authored by:

Craig Candler (Ph.D) and the Firelight Group Research Cooperative

On behalf of:

The four participating First Nations (Doig River First Nation, West Moberly First Nations, Halfway River First Nation and Prophet River First Nation)

Submitted to:

Treaty 8 Tribal Association (T8TA) of British Columbia, Doig River First Nation, West Moberly First Nations, Halfway River First Nation and Prophet River First Nation

Executive Summary

This report provides a summary of the data collected and methodology used for the Traditional Land Use Study (TLUS) conducted for Doig River First Nation (DRFN), West Moberly First Nations (WMFN), Halfway River First Nation (HRFN) and Prophet River First Nation (PRFN) (collectively the "First Nations") in relation to BC Hydro's Proposed Site C Project (the Project).

The primary objective of the TLUS was to provide evidence-based mapping to effectively inform consultation between the First Nations and the Crown, regarding the proposed Site C Project. This report deals only with the data collected and the methods used. It does not attempt to provide an assessment of the likely effects of the proposed Project.

Mapping interviews focused on a Local Study Area or LSA within 5km of the Project footprint (see Map 1). With 77 participants interviewed, a total of 796 site-specific use values were mapped within the LSA. Of the reported use values, 368 (or approximately 46% of total values reported within the LSA) are located within the flood zone and footprint proposed by BC Hydro. These inundated values include:

- 42 reported cultural/spiritual values including spiritual places, burials, medicine collection areas, teaching areas, ceremonial and prayer offering places, and locations associated with place names and oral histories;
- 74 reported environmental features including habitat areas, movement corridors and river crossing areas for ungulates and large carnivores including grizzly bear, winter fish habitat and spawning areas, bear dens, and moose and ungulate calving areas and winter browse;
- 77 reported habitation values including temporary and permanent or regularly used camping areas and gathering places including locations that have been regularly used for generations, and continue to be used today.
- 145 reported subsistence values including a large number of fish harvesting sites including for bull trout, dolly varden, rainbow trout, grayling, whitefish, and other species, as well as preferred harvesting areas for berries, plant foods and wood materials, preferred drinking water sources, and kill sites for moose, deer, black bear, small birds and furbearers.
- 30 reported transportation values including portions of trails, horse crossings, raft or boat crossings, and water routes by canoe and motorboat along the Peace River and adjacent tributaries.

All mapped values are based on the use and knowledge of Treaty 8 members. Of the 368 values within the flood zone, 63 (17%) were mapped as approximate locations, 336 (91%) were mapped based on direct first-hand experience and 32 (9%) were mapped based on second-hand knowledge.

The use and occupancy data collected shows the continued utilization of the Peace River, valley, and adjacent areas, despite change and privatization of lands, by the four participating First Nations. Members from all four communities documented knowledge and use values, including areas and resources utilized in the exercise of Treaty 8 rights, within and adjacent to the proposed Site C footprint.

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Acronyms and Abbreviations

T8TA	Treaty 8 Tribal Association
ATK	Aboriginal traditional knowledge
CASCA	Canadian Anthropology Society/ Société Canadienne d'Anthropologie
DRFN	Doig River First Nation
LSA	Local study area
WMFN	West Moberly First Nations
PRFN	Prophet River First Nation
HRFN	Halfway River First Nation
RSA	Regional study area
TEK	Traditional ecological knowledge
Firelight Group or Firelight	Firelight Group Research Cooperative
the Project	The Site C Dam
the proponent	BC Hydro
TUS	Traditional use study
VCs	Valued components
VECs	Valued ecosystem components

Section 1: Public Data Summary

This report provides a summary of data collected and methods used for the TLUS conducted with the First Nations in relation to BC Hydro's Proposed Site C Project.

The primary objective of the TLUS was to provide evidence-based mapping to effectively inform consultation between the First Nations and the Crown, regarding the proposed Site C Project. This report deals only with the data collected and the methods used. It does not attempt to provide an assessment of the likely effects of the Project.

1.1 Background and Organization of the Report

Plans for the Site C project began more than fifty years ago with the contemplation of three major dams on the Peace River. BC Hydro constructed the W.A.C. Bennett hydro-electric dam, the first on the upper Peace River, in the late 1960's. The second dam on the Peace River, the Peace Canyon Dam, was completed near Hudson's Hope in 1980. The third dam, Site C, is proposed to be built near Fort St. John, and would flood the valley of the upper Peace River back to the Peace Canyon Dam.

On December 16, 2010, BC Hydro, the Treaty 8 Tribal Association (T8TA), and the four participating First Nations (DRFN, PRFN, HRFN and WMFN) signed a Traditional Land Use Study Agreement providing resources and funding for the completion of use and occupancy mapping and harvest survey interviews related to the practice of Treaty rights within the Peace valley and in the area of the proposed Site C Project.

This report represents the completion of the reporting deliverables and the conclusion of the Traditional Land Use Study Agreement between T8TA, the four participating communities, and BC Hydro. It is organized into three main sections. The first section constitutes the public report, including a summary of the data. The second section constitutes the methodology report and includes a description of the methods used. The third section references the map deliverable already provided to BC Hydro.

1.2 About the Authors

The lead author of this report, Dr. Craig Candler, holds a Bachelor of Arts (with Honours) in Anthropology, a Master of Arts in Anthropology from the University of Alberta, and a Doctor of Philosophy in Anthropology from the University of British Columbia (completed in 2008). He has taught at the University of Alberta and the University of British Columbia and has more than 15 years experience working in the fields of community-based research and traditional use and traditional knowledge studies with First Nations. Much of Candler's work, including graduate work, has been with Dené and Cree peoples in the boreal forest of British Columbia and Alberta. He has led or written components for large and small environmental assessments and has been an invited speaker on cultural impact assessment for the Western and Northern Canada Affiliate of the International Association for Impact Assessment (IAIA). Since the mid-1990's, Candler has worked for several Treaty 8 First Nations and the Treaty 8 Tribal Association. He also worked for five years with Golder Associates as a Senior Traditional Studies Specialist, and Senior Technical Lead for traditional studies in Golder's Victoria office. Much of this work involved integration of indigenous use and knowledge within environmental assessments, including identification of mitigations, and consideration of data from multiple disciplines, including wildlife, aquatic resources, and vegetation. In late 2009 Dr. Candler left Golder Associates to co-found the Firelight Group Research Cooperative. Dr. Candler serves on the Executive of the Canadian Anthropology Society/Société Canadienne d'Anthropologie (CASCA), and is a professional member of the American Anthropological Association (AAA), the National Association for Practicing Anthropology (NAPA), and the Society for Applied Anthropology (SfAA).

Cartography for this report was provided by Steven DeRoy. Steven has over 14 years experience in cartography, GIS, community training, and technical services working with aboriginal communities and other organizations across Canada.

All interviews specific to this report were conducted by Rachel Olson, Alistair MacDonald, Carolyn Whittaker, David Thompson, Craig Candler, and Steven DeRoy of the Firelight Group, and were completed with the support and assistance of staff from the T8TA, DRFN, HRFN, PRFN and WMFN.

An internal peer review of the draft report was completed by Dr. Ginger Gibson of the Firelight Group. Additional review and support was also provided by Carolyn Whittaker. While others have assisted, reviewed and made suggestions, the opinions and conclusions expressed herein are those of the primary author, Dr. Craig Candler. Appendices 6 and 7 provide a CV for Dr. Candler, Lead Researcher and Author, and for Steven DeRoy, Cartographer.

1.3 What is a Project Specific Traditional Land Use Study?

A project specific traditional land use study (TLUS)[1], is a systematic and evidence based form of investigation that applies indigenous knowledge and social science to accomplish goals that include describing the knowledge, use and interests of a community in relation to a proposed project or area. In some cases, project specific TLUS also assess potential project effects, identify mitigations or enhancements, or make recommendations that may reduce negative effects and increase positive ones. Because of constraints of time and budget, and effort required to achieve the goals of the December 16, 2010 TLUS Agreement, this study is limited to describing the use and occupancy of the four participating First Nations with a focus on the Project footprint and adjacent areas.

Most TLUS, including this one, use mapping as an important method. Good community mapping practice (see Tobias 2010) emphasizes individual map biography interviews involving documentation of prior informed consent and a consistent and well-documented method for data collection and management (see Appendices 4 through 6).

1.4 Study Limitations

All mapped values are based on the use and knowledge of Treaty 8 members. Interpretation provided herein is based on the understandings of the author, and is not intended as a complete depiction of the dynamic and living system of use and knowledge maintained by the elders and members of the four participating First Nations. Absence of data does not mean absence of use or value. Additional studies are necessary to fill information gaps regarding the participating First Nations' knowledge and the resources, criteria, thresholds and indicators necessary to sustain meaningful practice of Treaty 8 rights into the future.

Nothing in this submission should be construed as to waive, reduce, or otherwise constrain the rights of the four participating First Nations within, or outside, regulatory processes. Nor should it be construed as to define, limit, or otherwise constrain the treaty or aboriginal use or rights of other First Nations or aboriginal peoples. This report is specific to the Site C project, focused on the Project's footprint, including the dam site, reservoir and adjacent areas. It should not be relied upon to inform other projects or initiatives without written consent of the participating First Nations.

Due to constraints of time and budget, this study considers only the results of use and occupancy mapping interviews completed for the Project, and a limited number of

[1] While there are various names and acronyms used, the term traditional use study (TUS), or variants, is perhaps the most common in western Canada. Tobias (2010: 32-33) provides a discussion of terms and definitions and suggests the term use-and-occupancy mapping (UOM). For the purpose of this study, we use the term TLUS to remain consistent with the December 16, 2011 TLUS agreement between BC Hydro, the T8TA, and the four participating First Nations.

contextual or harvest survey interviews. Other existing sources of information, including ethnographic, archival or other existing studies, were not considered in detail. Interviews lasted approximately 2-3 hours and data collected for each land user is limited to what the participant was able and willing to report in that time. Documentation of oral histories or other forms of traditional knowledge beyond use and occupancy were outside the scope of the study.

Other limitations of the study include the following:

- Maps and written documents can only provide a limited snapshot of the rich and living practice of use and knowledge by a First Nations community and frequently cannot convey the deep meaning and emotional import that is integral to indigenous connections to lands and waters. We have attempted to address this limitation through:
    - oral presentation of the map deliverables to BC Hydro representatives by elders and knowledge holders from each of the four participating First Nations on November 7, 2011. This presentation was recorded and is maintained by the Treaty 8 Tribal Association;
    - Inclusion of appendix 1 which provides a First Nation's Declaration Concerning the Proposed Site C Dam issued by the Chiefs of the participating First Nations, and;
    - Inclusion of appendix 2, which provides key issues boxes, including photos and text included in the presentation map provided to BC Hydro on November 7, 2011.
- While limitations due to map scale and currency of base data were minimized through use of direct to digital mapping, which allows mapping at much finer scales and using much more current photo imagery than is generally possible with standard NTS maps, the method brings other challenges with it. It is possible for participants to become disorientated by a map that 'moves' and changes scale. Particular care was taken through the interview process to minimize this problem. Also, while cartographic literacy was confirmed at the outset of the interview process through identification of the person's current residence, a small number of knowledge holders (approximately 1%) have difficulty adjusting to map images projected on a wall even with orientation during the interview.
- Key respondents were not always available or willing to participate in the mapping interviews. In at least one case, an individual identified by other knowledge holders as one of the most frequent and expert users of the local study area chose not to participate in the study, despite multiple efforts to arrange interviews. In another case, a senior elder in one of the First Nations participated in an interview, and mapped some kinds of values, but chose not to indicate site-specific subsistence or temporary habitation values because, as he put it, he had "hunted and camped all over that country", and felt that mapping particular places would miss the point that the he practices his rights over a wide area.

- In several cases, and particularly where use of the LSA was extensive, there was not adequate time to document *all* values associated with each activity type. In these cases, interviewers focused on documenting *some* values of each type with primary attention to areas within the Project footprint and flood zone and secondary attention to areas further from the Peace River valley. As such, mapped data for a given participant represents all values recorded during the interview, but not necessarily all values held or known, and;
- The direct to digital method allows participants to see data recorded on screen as they report it. This allows for confirmation and correction of information within the interview setting. However, following the interview process, only a single follow-up data review and confirmation meeting was held with each of the four participating communities. Attendance was variable, and while these community review meetings allowed confirmation of general patterns of use, they did not allow for detailed review of participant's data with each participant present.

Based on review of mapped data and responses in the community review meetings it was noted that the distribution of land use and occupancy shown in the map data between the Peace River Valley and areas of the LSA to the south, including portions of the Del Rio and Peace-Moberly Tract areas, do not reflect the understandings of at least some of the participating First Nations regarding their use patterns. Lack of congruence between the mapped data, and First Nations understandings of their own use, in areas away from the Peace River Valley are likely due to a combination of the limitations noted above. Based on this lack of congruence, data from this study, and particular to these areas should be considered with particular caution unless additional work is conducted to supplement or verify the results.

1.5 Data Summary of Reported Site-specific Values

As detailed in Section 2, the mapping interviews focused on a Local Study Area or LSA within 5km of the Project footprint (see Map 1). With 77 participants interviewed, a total of 796 site-specific use values (points, lines and polygons, not including loss of use areas) were mapped within the LSA. The majority of reported values are located in the lower parts of the Peace River valley, clustered along the low lying Peace River flats and along adjacent streams, and especially at the confluence of the Peace River and streams such as Cache Creek, Halfway River, Moberly River, and Lynx Creek. Of the 796 values mapped within the LSA, 368 (46%) are within the anticipated flood zone and Project footprint. These 368 values include:

- 42 reported cultural/spiritual values including spiritual places, burials, medicine collection areas, teaching areas, ceremonial and prayer offering places, and locations associated with place names and oral histories;
- 74 reported environmental features including habitat areas, movement corridors and river crossing areas for ungulates and large carnivores including grizzly bear,

winter fish habitat and spawning areas, bear dens, and moose and ungulate calving areas and winter browse;

- 77 reported habitation values including temporary and permanent or regularly used camping areas and gathering places including locations that have been regularly used for generations, and continue to be used today.
- 145 reported subsistence values including a large number of fish harvesting sites including bull trout, dolly varden, rainbow trout, grayling, whitefish, and other fish, as well as preferred harvesting areas for berries, plant foods and wood materials, preferred drinking water sources, and kill sites for moose, deer, black bear, small birds and furbearers.
- 30 reported transportation values including portions of trails, horse crossings, raft or boat crossings, and water routes by canoe and motorboat along the Peace River and adjacent streams.

All mapped values are based on the use and knowledge of Treaty 8 members belonging to one of the four participating First Nations. Within the flood zone and footprint, 63 values (17%) were mapped as approximate locations and 32 (9%) were mapped based on second-hand knowledge.

As noted above, use and occupancy values in the LSA reported by the participating First Nations are not distributed evenly. They are concentrated along the river and adjacent streams, and especially in the area of a small set of very heavily used ancestral gathering places located primarily on the north shore of the Peace River and at the confluence of smaller streams or rivers with the Peace. Figure 1 illustrates the distribution of values in relation to some of these gathering places. Each of these critical areas is located on low- lying flats adjacent to the Peace River or its tributaries.

Figure 1: Reported Site-Specific Use Values within 5km of Select Confluence Areas[2]

Confluence Areas	# of values (# habitation values)	# of values as % of total within LSA (n=796)	# of habitation values as % of total habitation values within LSA (n=119)
Bear Flats (Cache Creek / Peace River)	161 (52)	20%	43%
Farrell Creek / Peace River	57 (8)	7%	7%
Halfway River / Peace River	154 (30)	19%	25%
Lynx Creek / Peace River	69 (19)	8%	16%
Moberly River / Peace River	83 (13)	10%	11%

[2] There is some overlap between the 5km areas. Values within 5km of more than one confluence and gathering place were counted in each.

Section 2: Methods

Baseline data collection for the study involved scoping of issues, document review and gap analysis, and use and occupancy mapping and harvest interviews. Background information, including Project documents, previous studies, and other existing information was reviewed and initial scoping and methodology design meetings were held with each of the four communities and with T8TA staff in spring 2011. Between May and August 2011, structured use and occupancy mapping interviews were conducted with 77 participants from the four participating First Nations including 29 DRFN members, 21 WMFN members, 17 HRFN members and 10 PRFN members. In some cases, multiple interview sessions were conducted with a single participant in order to collect more detailed mapping or harvest information. Verification interviews, data processing and map creation were completed in September and October 2011. On November 7, 2011, elders and land users from the four participating communities, with support from T8TA staff and the Firelight Group, presented hard copies of the resulting map deliverable to BC Hydro and the T8TA leadership.

2.1 Identification of Valued Components

Based on initial scoping, and consistent with standard environmental assessment practice, a set of key activity codes, or valued components, were identified early in the study. A valued component (VC)[3] is an important aspect of the environment that a project has potential to effect and that is focused on in baseline collection or assessment (Hegmann et al. 1999). The identification of VCs provides a way to focus on what is most important regarding a particular project. The VCs for this assessment were determined through:

- Initial scoping meetings in each of the four participating communities.
- consideration of past work with Treaty 8 communities;
- consideration of initial activity codes suggested by BC Hydro; and

[3] Valued ecosystem component (VEC) is another term frequently used, but is focused on biophysical resources. This report uses the more general term valued component (VC) in relation to Treaty 8 knowledge and use values, as VCs may include tangible or biophysical resources (e.g., particular places or species), as well as more social or knowledge based VCs such as place names or traditional knowledge regarding a particular area.

- review of materials from past studies.

For the purpose of this report, VCs are limited to site-specific values that may be mapped and are reported as specific and spatially distinct (though the locations may be considered confidential). Non-site-specific values that may be specific to a resource or other concern but are spatially indistinct or difficult to map were recorded, but were not analyzed for this report.

Site-specific values, such as cabins, or kill sites, reflect specific instances of use that anchor the wider practice of livelihood within a particular landscape. A particular moose kill site may be mapped with a precise point, but that value is correctly interpreted as an anchor, or focal point, for a wide spectrum of other related livelihood practices and values, including wider hunting areas covered in efforts to find the moose, practice of navigation and tracking in order to access it, religious or ceremonial practices that may be associated with the hunt, food processing and preparation techniques to utilize it, and the range of social relationships and knowledge transmission (teaching) activities that are required for a successful hunt to occur. In other words, every mapped site-specific value implies a much wider range of activities, and a wider geographic area, upon which the meaningful practice of that use relies. The actual area covered by recorded site-specific use values should be understood as a small portion of the area actually required for the meaningful practice of Treaty 8 livelihood.

Site-specific valued components (VCs) for baseline collection included five classes of site-specific values:

- Subsistence values (including harvesting and kill sites, plant food and collection areas, and trapping areas);
- Habitation values (including temporary or occasional and permanent or seasonal camps and cabins);
- Cultural/spiritual values (including burials, village sites, ceremonial areas, and medicinal plant sites);
- Transportation values (including trails, water routes, and navigation sites); and
- Environmental feature values (including specific highly valued habitat for moose, fish, or other animals).

2.2 Temporal and Spatial Boundaries

The temporal boundaries for baseline collection included past, but focused on current knowledge and use. For the purpose of this study, a past value refers to an account of knowledge and use prior to living memory; a current value refers to an account of knowledge and use within living memory of participants. The knowledge and use of the participating First Nations is practiced within the context of complex cultural and ecological changes that have taken place within, and prior to, living memory. Some of

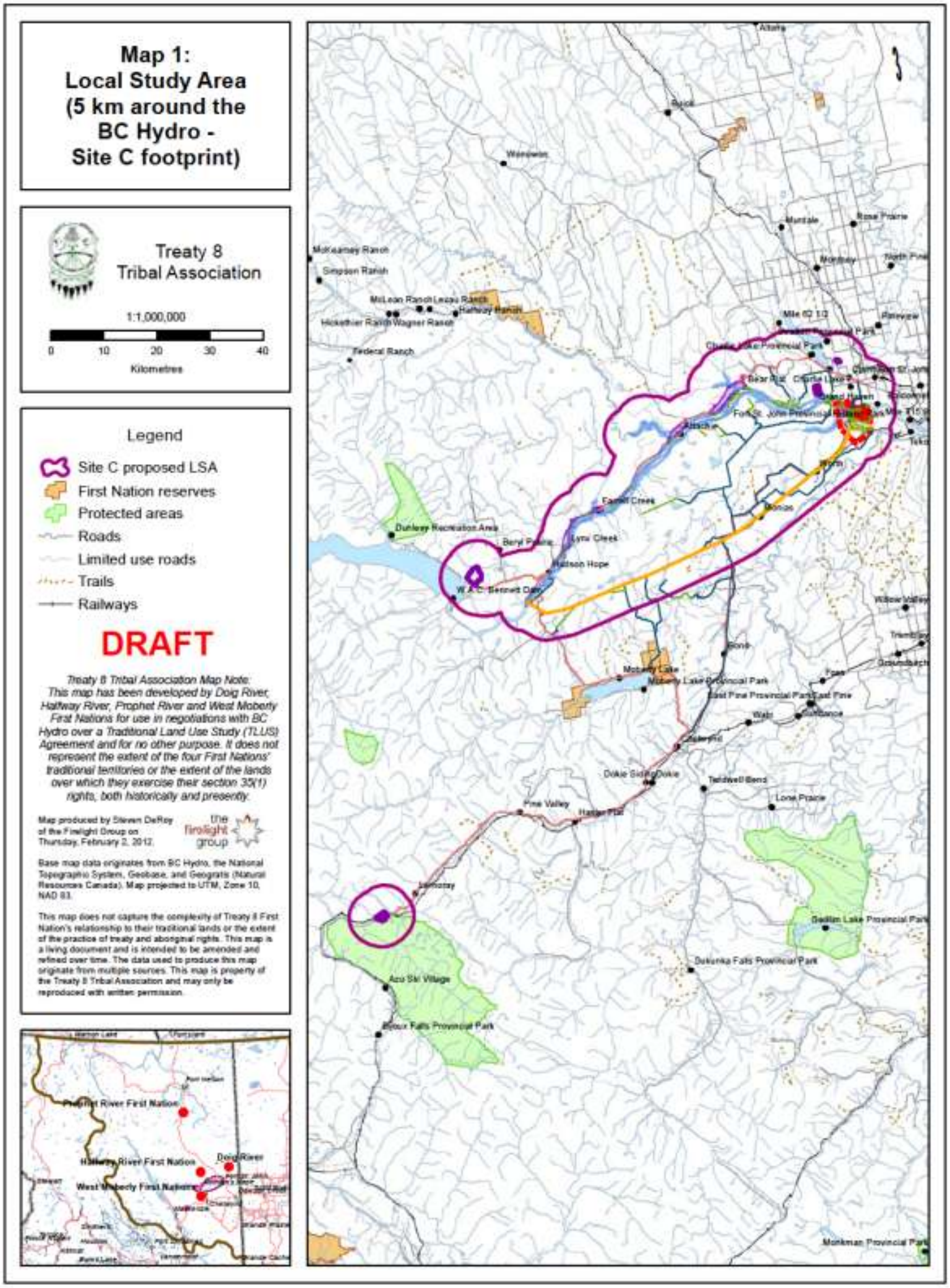
the influencing factors that current land use is conditioned by include:

- institutional influences (e.g. the Indian Act, residential schools, social assistance, creation of the registered trapline system, the creation of the flood reserve, suppression of indigenous management of resources)
- privatization and enclosure of lands formerly held and maintained by First Nations;
- harvesting pressures (fish and game) from non-First Nations within and outside the study area;
- encroachment by non-renewable resource development (e.g. energy exploration and development, forestry, mining, shale gas);
- changing access routes (e.g. roads, bridges, cut lines) and changing transportation technology (e.g. skidoos, vehicles) resulting in altered First Nations use patterns, and increased pressure by non-resident users;
- environmental changes including forest fires, and changes in predator/prey relationships (e.g. resulting from inundation of large habitat areas upstream)
- alterations to river flow resulting from upstream hydro developments;
- concerns regarding contamination and quality of wild foods, water, and other resources;
- unequal interactions between wage based economies and bush economies;
- changing patterns of renewable resources upon which the practice of First Nations rights relies (e.g. decline of caribou, bison, and increased pressure on moose).

Spatial boundaries for baseline collection included a local study area (LSA) on which mapping focused, and within which relatively intense project related disturbance can be expected, and a larger regional study area (RSA) within which Project and cumulative effects may interact with Treaty 8 values. The LSA was defined as an area within 5 km[4] of the Project footprint including the flood zone, quarry sites, dam construction area, transmission line, and associated works as indicated in Figure 2. The RSA is a broader area within which direct or indirect effects of the Project may be anticipated, such as noise, dust, odors, access management, traffic, effects on water and other disturbance.

[4] Five kilometers (just over three miles) is an approximation of the distance easily travelled in a day trip from a point (such as a cabin, camp or other location) by foot through bush, as when hunting, and returning to the point of origin (Candler et al. 2010: 29). It is used as a reasonable approximation of the area relied upon for regular resource use, or zone of reliance, surrounding a given transportation or habitation value.

Figure 2: Local Study Area in Relation to the Site C Project



2.3 Interview and Mapping Methods

A scoping process and gap analysis of existing information sources was conducted prior to the start of interviews in order to inform the interview process. While previous land use and occupancy mapping conducted by the four participating First Nations was reviewed, baseline information for this report relies on data collected through interviews conducted as part of this study. A total of 81 formal use and occupancy mapping interviews were conducted with 77 elders and land users from the four participating First Nations in Spring and Summer 2011. Additional follow-up and harvest survey interviews were also conducted. The initial participant sample was developed based on community identification of knowledge holders and land users conducted during initial scoping. Effort was made to involve men and women, and representatives of all major families within each First Nation. Efforts were also made to involve both elders, and younger land users living on and off reserve. No field verification of mapped interview data was conducted.

Almost all Site C mapping interviews were conducted with individuals rather than groups. In a handful of cases, small group interviews of up to two people were conducted. All interviews included documentation of prior informed consent (see Appendix 3), and used a standardized interview guide (see Appendix 4) designed to meet the needs of the study and to provide a consistent, but flexible, framework for soliciting and recording responses. Interview and mapping protocols were based on standard techniques (Tobias 2010). Map data was captured and managed using a direct-to-digital process involving mapping on-screen, with Google Earth imagery as a digital base and geo-referenced 1:50,000 scale or finer data displayed on a wall or screen. Appendix 5 contains additional details concerning the mapping process. Interview data was collected so that disaggregation of individual participant data was possible, and first hand and second hand information was distinguished. Data collection focused on the Project LSA, but extended into the RSA as necessary to record values of importance to participants, and within constraints of time.

All mapping interviews were recorded using digital audio recording, digital video recording of the map surface, and through interview notes captured in notebooks. Questions were designed to gain an understanding of the participant's background and relationship to the Peace River valley, patterns of avoidance and use, including hunting, trapping, fishing and related practices, and how the participant's use changed over time. Where data was location-specific, it was mapped using points, lines, or polygons. Where possible, temporal information regarding season and year was recorded. Coding of data took place on screen so that it could be reviewed as it was entered. Interviews averaged approximately two and a half hours. For some participants, there was not adequate time to address the LSA as a whole. Where this was the case, areas in the vicinity of the Site C footprint were emphasized, and where possible, a follow up interview was scheduled. All interviews were conducted in English although Cree or Dane-Zaa translation was made available in some cases.

2.4 Evaluation of Data Quality

The December 16, 2010 TLUS Agreement between T8TA, the four participating First Nations, and BC Hydro identifies eight measures of data quality, consistent with Tobias (2010). Figure 3 considers these measures and the steps taken in this study to achieve them.

Figure 3: Measures of Data Quality (based on Tobias 2010: 142-145)

Measure	Steps Taken
Objectivity	Through data collection and reporting, researchers endeavored to maintain an evidence-based approach to the data, and to its presentation. The Interview Guide was designed and peer reviewed with attention to objectivity and avoidance of biased questions.
Reliability	Data collection followed a consistent, documented interview procedure, as described in Section 2 and Appendices 4-6. Each interview team included a lead interviewer with training, and at least 100 hours of interview experience with the direct to digital interview and mapping method used. Sample mapping files and field notes were reviewed by Dr. Craig Candler, Project Director, to confirm consistent application of methods.
Accuracy	The Direct to Digital method used Google Earth imagery to mark locations at scales better than 1:50,000, and in many cases, better than 1:5,000. As well as providing enhanced precision, the fine scale, and photographic quality of the imagery, allowed the participants to visually orient and identify detailed land features including particular buildings, small seismic lines, and other features. Google Earth imagery was supplemented with detailed local place names, hydrologic features, and legal boundaries derived from NTS data imagery. Each interview team included a lead interviewer with training, and at least 100 hours of interview experience reading and navigating digital maps. One participant indicated difficulty in confidently identifying land forms or locations, values were mapped with the '?' modifier, or were documented as non-site-specific.

Precision	The Direct to Digital method used Google Earth imagery to mark locations at scales better than 1:50,000, and in many cases, better than 1:5,000. Each interview team included a lead interviewer with training, and at least 100 hours of interview experience marking data. Use of points was preferred over polygons and lines.
Representativeness	Effort was made to include representation from men and women, and all major families in each First Nation. The sample was weighted towards older land users recognized as authorities in each community, but in each case also included younger land users in the 20-40 year-old age range. Due to time, budget, and logistical constraints, the study achieved a non-random response rate ranging from approximately 7% (HRFN) to approximately 11% (DRFN) of total registered population. As such, the sample should be taken to represent the 77 participants rather than the broader populations as a whole.
Data Integrity	All interviews were audio recorded, with the projected map surfaces video recorded, and individual map features entered with activity code, geo-reference, and PIN based on a visible red laser controlled by the participant. Verbal anchoring was practiced. Data management used a consistent protocol for labeling and storing files. Audio files have not been transcribed, but the combination of field notes and sequence numbers as part of the Site ID code should allow tracing of provenience of audio records to within five minutes in most cases.
Validity	A structured interview guide was used, including definitions of key activities, however interviewers sought a balance in the interview between consistency and maintaining rapport. The guide was developed with precise and simple language. Each interview team included a lead interviewer with training, and at least 100 hours of interview experience with the method. Due to constraints imposed by the TLUS agreement, including required species based questions, the length of the interview guide was longer than would ordinarily be advisable.
Auditability	Data collection followed a consistent, documented interview procedure, as documented in Section 2 and Appendices 4-6.

Section 3: Map Data

Map data from this study is considered confidential information belonging to T8TA and the four participating First Nations. A copy of the map data for this study was provided at a scale of 1:50,000 in hard copy and PDF to BC Hydro on November 7, 2011. For especially sensitive values identified in the December 16, 2010 TLUS Agreement as, "sacred areas, burial sites, traditional spiritual areas, and medicinal plants" (p. 8), points were randomized by 250m, then 1 km buffers were generated around sensitive points, lines, and polygons in order to account for margin of error, and to protect especially sensitive information. Copies of all map data have been returned to each of the four participating communities and the Treaty 8 Tribal Association.

Section 4: Summary and Conclusion

4.1 Summary

This report provides a summary of data and methods used in the TLUS conducted for the Doig River First Nation, West Moberly First Nations, Halfway River First Nation and Prophet River First Nation in relation to BC Hydro's Proposed Site C Project. This report deals only with the data collected and the methods used. It does not attempt to assess likely effects of the Project.

The data collected shows the continued utilization of the Peace River, valley, and adjacent areas, despite change, by the four participating First Nations. Members from all four communities documented knowledge and use values, including areas and resources fundamental to the practice of Treaty 8 rights, both within the flood zone and adjacent to the proposed footprint.

4.2 Closure

Should there be questions or clarification required regarding this report and assessment, please email requests to craig.candler@thefirelightgroup.com.

Signed March 28, 2012

ORIGINAL SIGNED

Craig Candler, Ph.D. (Cultural Anthropology)
Director, Community Studies and First Nations Consultation
The Firelight Group, 864 Dunsmuir, Victoria, BC, V9A 5B7

cc/ro/cw/dt/gg/sd

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Appendix 1: First Nations Declaration Concerning the Proposed Site C Dam

"...for as long as the sun shines, the grass grows and the rivers flow..."

Treaty No.8

DECLARATION on this 17th day of September 2010

of the
Doig River First Nation
Halfway River First Nation
Prophet River First Nation
West Moberly First Nations

Concerning the Proposed Site C Dam on the Peace River, British Columbia

Wǫchiigíi Yededzę? Dane Gǫdineh Yą t'a dǫh ááh? kaa

WHEREAS we, the Dunne Zaa/Dane zaa people of the Doig River First Nation, Halfway River First Nation, Prophet River First Nation and West Moberly First Nations are the original indigenous Nations of northern British Columbia who have a unique historical, spiritual and cultural link to the land:

- We have occupied the Peace River Valley and its tributaries, the Athabasca and Mackenzie watershed region since time immemorial ; and continue to occupy this land;
- Our ancient, sacred sites and graves of our ancestors are found throughout the Peace River Valley and its tributaries;

AND WHEREAS we have inherent, constitutional rights to continue our way of life in the Peace River region:

- We are signatories to Treaty No. 8, a peace and friendship Treaty between the Crown and each of the signatory First Nations.
- We are stewards of the land, who face industrial devastation to the land; and
- In Treaty No. 8, the Crown and First Nations agreed that the First Nation signatories "have the right to continue with our way of life for as long as the sun shines, the grass grows and the rivers flow" without forced interference as though never entered the treaty; and

The rights provided for in Treaty 8 are constitutionally recognized and affirmed by section 35 of the *Constitution Act*, 1982;

AND WHEREAS the Province of British Columbia proposes to construct and operate a major hydroelectric dam project (the "Site C Dam") on the Peace River that eliminates our ability to continue our way of life and exercise our Treaty-protected constitutional rights to hunt, trap, fish, harvesting and carry out traditional practices on the land. Construction and operation of the proposed Site C dam will, among other things, have direct and cumulative impacts that (but not limited to):

1

FIRST NATIONS DECLARATION CONCERNING THE PROPOSED SITE C DAM

"...for as long as the sun shines, the grass grows and the rivers flow..."

Treaty No.8

- Disrespect and destroy the graves of our ancestors
- Eliminate critical warm lowlands where both predators and prey survive harsh northern winters;
- Demolishes habitat and disrupts migration routes for bull trout and other fish species at the top of the Peace River aquatic food chain and cause them to become contaminated with mercury that poisons the traditional foods of First Nations, as happened already behind the Bennett Dam already impacting our homeland;
- Annihilate the islands in the Peace where cow moose deliver their calves Submerge key ungulate calving grounds for moose, mule deer, and elk;
- Eliminate regionally rare and important ecosystems, including old growth deciduous and mixed wood forest of the Peace, Halfway, and Moberly Rivers, riparian forests important to furbearers, habitat for red and blue listed neo-tropical migrant birds, and traditional and medicinal rare plant communities;
- Destroy more than 7000 acres of class one and class two farmland and along with it the opportunity for food security in northeast BC and other lands eliminated by erosion;
- Together with the reservoirs created by the two existing dams, create a cumulative barrier to fish and wildlife, especially grizzly bear, movement at the narrowest waist of the continentally important Yellowstone to Yukon wildlife corridor;
- Exacerbate the negative environmental impacts caused by the first two upstream Peace River dams to the Peace-Athabasca delta and other wetlands down the Peace, Athabasca and Mackenzie river watersheds through Alberta and the Northwest Territory all the way to the Arctic Ocean;
- Add 147,000 tons of carbon dioxide to the atmosphere as a result of this dam project which this government has dared call green and clean; and
- Eliminates the very land upon which our people hold annual cultural camps to maintain the heritage of our relationship between our Elders, our youth and the land that is our duty to pass on to future generations in a healthy vibrant state.

AND WHEREAS the proposed Site C Dam will have harmful environmental effects that will impact on First Nations, and all residents in the Peace River region or downstream;

AND WHEREAS it is in the interests of all British Columbians that the Peace River and its tributaries be preserved for future generations;

AND WHEREAS We, the Chiefs of the four First Nations, gathered with affected First Nations located downstream of the proposed Site C Dam, along with several environmental organizations and concerned residents of the Peace Region, at a Summit on September 16 and 17 in Fort St John, British Columbia;

2

FIRST NATIONS DECLARATION CONCERNING THE PROPOSED SITE C DAM

"...for as long as the sun shines, the grass grows and the rivers flow..."

Treaty No.8

WE, THE UNDERSIGNED CHIEFS AND SUPPORTERS, ON BEHALF OF OUR RESPECTIVE FIRST NATIONS, CALL UPON THE FEDERAL GOVERNMENT WHO HAS A FIDUCIARY OBLIGATION TO ALL THE FIRST NATIONS POTENTIALLY AFFECTED BY THE PROPOSED SITE C DAM TO PROTECT AND SAFEGUARD THEIR INHERENT INDIGENOUS RIGHTS AND WAY OF LIFE;

WE, THE UNDERSIGNED CHIEFS AND SUPPORTERS, ON BEHALF OF OUR RESPECTIVE FIRST NATIONS, CALL UPON THE PREMIER AND THE GOVERNMENT OF BRITISH COLUMBIA TO:

- Support and adequately fund a full, independent comprehensive cumulative assessment with a pre-industrial baseline of the proposed Site C Dam on the Peace River region and the Athabasca and MacKenzie Delta, including a full environmental and cultural assessment of the impacts of the two previously constructed upstream dams, and how and will continue to impact and affect will affect the Treaty rights and interests of the First Nations;
- Support and adequately fund a full, independent study of all viable alternative options for the production of electricity for the Province's needs;
- Halt any and all efforts of the proposed project until the completion of these full, independent studies;
- Re-instate the authority of the BC Utilities Commission to examine the true economic impacts to the people of British Columbia of constructing the Site C Dam; and
- To allow formal participation by First Nations in the decision making process concerning the proposed Site C Dam and to agree that where no agreement can be reached on the proposed Site C Dam to agree to appoint together with First Nations an impartial decision maker.

AND, FURTHERMORE, IN RECOGNITION OF THE IMPACT THAT THE PROPOSED SITE C DAM WILL HAVE ON THE LOCAL ENVIRONMENT, OUR WAY OF LIFE AND OUR ABILITY TO EXERCISE OUR TREATY RIGHTS,

WE, THE UNDERSIGNED CHIEFS AND SUPPORTERS, ON BEHALF OF OUR RESPECTIVE FIRST NATIONS, DECLARE THAT:

- We are opposed to the proposed Site C Dam;
- We vow to use all lawful means to stop the Site C Dam from proceeding; and
- We assert that the proposed Site C Dam is not "green or clean."

3

FIRST NATIONS DECLARATION CONCERNING THE PROPOSED SITE C DAM

"...for as long as the sun shines, the grass grows and the rivers flow..."

Treaty No.8

SIGNATORIES:

Chief Norman Davis, Doig River First Nation

Chief Ed Whitford, Halfway River First Nation

Chief Lynette Tsakoza, Prophet River First Nation

Chief Roland Willson, West Moberly First Nations

FIRST NATIONS JOINED IN OPPOSING SITE C.

OTHER B.C. FIRST NATION CHIEFS:

Treaty 8

Chief Derek Orr, CHIEF
McLeod Lake Indian Band

TREATY 8 CHIEFS FROM ALBERTA:

VERBAL ASSENT
Danny Bellerose, PROXY
Driftpile First Nation

VERBAL ASSENT
Matthew Willier, PROXY
Sucker Creek First Nation

Leon Chalifoux, CHIEF
Swan River First Nation

VERBAL ASSENT
Gus Loonskin, Chief
Little Red River Cree Nation

4

FIRST NATIONS DECLARATION CONCERNING THE PROPOSED SITE C DAM

"...for as long as the sun shines, the grass grows and the rivers flow..."

Treaty No.8

VERBAL ASSENT
Don Testawich, CHIEF
Duncans First Nation

Dilbert Salopree, PROXY
Dene Tha' First Nation

VERBAL ASSENT
Rupert Meneen, CHIEF
Tall Cree First Nation

VERBAL ASSENT
Vyola Goodswimmer, PROXY
Sturgeon Lake Cree First Nation

THE FOLLOWING FIRST NATIONS ARE IN SUPPORT OF THIS DECLARATION:

VERBAL ASSENT
Sam Gargan, GRAND CHIEF
Dehcho First Nations

James Marlowe, PROXY
Lutselk'e Dene First Nation

Nuni Sanspariel, PROXY
Yellowknives Dene First Nation

5

FIRST NATIONS DECLARATION CONCERNING THE PROPOSED SITE C DAM

Appendix 2: Key Issue Boxes from Presentation Map

1.

wǫchiigíi yededzę? dane
gǫdineh yą t'a dǫh ą́ą́h? kaa

Our Children Will Use the Peace River in the Future

2.

Cumulative Effects

- Practice of Treaty rights in the Local Study Area is constrained by cumulative effects that include:
  - Existing hydro developments (downstream water quantity and quality issues, as well as flooding and disturbance);
  - Some (but not all) private lands and agricultural uses;
  - Oil and gas wells, particularly along Farrell Creek and the lower Moberly River (Del Rio and North Monias);
  - Expanding transportation and road networks;
  - Sport and recreational hunting and fishing;
  - Forestry (clearing and spraying); and,
  - Downstream impacts from mining and other industries.

3.

Wildlife Corridors and habitat for *dlezhe* (grizzly bear), *hadaa* (moose) and Other Species

- Multiple wildlife corridors including river crossing areas used for north-south movement of *dlezhe* (Grizzly Bear), a culturally important and federally listed species, as well as moose, deer, elk, wolf, and others.

dlezhe (grizzly bear) photographed near WMFN Reserve (top) and near confluence of Peace River and Farrell Creek (bottom).

4.

nǫ́daa saaghae (Lynx Creek) values

- Ancestral gathering place for Dane-zaa families prior to and since Treaty and still used regularly. Use relies on a constellation of values including:
  - o permanent camping and habitation areas,
  - o preferred hunting, fishing areas;
  - o important wildlife habitat; and,
  - o associated oral histories.

Fishing on the Peace River at nǫ́daa saaghae (Lynx Creek)

5.

Oral Histories, Dreamer Stories, and Cultural Landscapes

The Peace River valley is a 'cultural landscape' (see UNESCO 1992, Parks Canada 1999), defined by unique oral histories, place names, and knowledge, that is an integral feature of Dane-zaa and Treaty 8 oral tradition, identity, and practice of rights.

- In oral histories, and through cultural and subsistence practices, the Peace River valley is:
  - shared between Dane-zaa, Cree and other groups.
  - forms a defining physical and cultural boundary between some groups, and an important zone of interaction and 'gathering together' for all.
  - plays an important role in the continuity of relations within and between Treaty 8 communities, and between communities and the land, and has done so since the signing of Treaty No. 8, and before; and,
  - is connected within a larger cultural landscape that includes the Twin Sisters and other culturally important areas.

"If we lose the land where we have our stories, our kids will never know."

DRFN Elders Margaret Attachie, Madeline Davis and Margaret Dominic

The next generation in the Peace River valley

6.

Oral Histories of Conflict, Contact, and Peace

- Peace River valley is an anchor for oral histories of Dane-zaa and Cree interactions, including battles and peace making.
- Burials from these battles were reported on the south side of the Peace River.

7.

Peace River Islands: Wildlife Habitat and Sacred Areas

- Hunting for subsistence purposes on the islands of the Peace River is culturally restricted. Participants in the study indicated that:
  - specific islands along the Peace River have specific histories, with some associated with particular dreamers and spiritual power;
  - the forested islands of the Peace form a sacred 'refuge' for animals, especially moose and deer during calving or rearing. One elder described the islands of the Peace as being "…just like Twin Sisters".

Islands on the Peace River are understood to protect and sustain moose, deer and other animals, especially when calving or rearing young. Hunting on the islands is culturally avoided.

8.

atachii (Attachie) burials

- Multiple unmarked Dane-zaa burials associated with the 1919 flu, including Chief Attachie's, are reported to be located in the valley. Chief Attachie's burial is reported to be located on a south facing slope. Other Dane-zaa burials took place in the valley bottom downstream of Bear Flats.

Peter Attachie pulling Chief Attachie's casket before burial on the north bank of the Peace River, c. 1919

9.

sas tluuge? **(Bear Flats) and juuzhe saaghae (Cache Creek) values**

- An ancestral gathering place for Dane-zaa families prior to and since Treaty, and still used regularly. Use is reported to rely on a unique cultural landscape including:
  - o permanent camping and habitation areas;
  - o ceremonial and sacred areas;
  - o preferred fishing and hunting areas;
  - o very high value ungulate winter range;
  - o fresh water springs;
  - o trail and transportation routes; and,
  - o associated oral histories.

Dane-zaa drum dance and gathering at Bear Flats, 2009.

10.

hak'ai chuk **(bison) & bison jump**

- Core habitat for *hak'ai chuk* (bison), a culturally important and federally listed, species currently extirpated from the area. Peace River valley includes a bison jump that features in oral histories of Dane-zaa harvesting bison into the 20th century.

hak'ai chuk (Bison) (top) and Dane-zaa bison jump on the Peace River.

11.

Halfway River values

- Ancestral gathering place for Dane-zaa families before and since Treaty, and still used regularly. Use relies upon a unique cultural landscape including:
  - o permanent camping and habitation areas;
  - o multiple burials, sacred areas;
  - o preferred fishing areas, especially for Bull Trout or Dolly Varden;
  - o Very high value ungulate winter range; and,
  - o associated oral histories

Elder Max Desjarlais (WMFN) praying during a gathering at the Peace River (left), Twin Sisters from the Peace River near its confluence with the Halfway River (right)

12.

Moberly River values

- Ancestral gathering place for Dane-zaa families before and since Treaty. Use relies upon a constellation of values on both sides of the Peace extending downriver to *zalla? tǫnaadiichdǫ* (Old Fort), including:
  - o camping and habitation areas;
  - o trails along the Moberly River; and,
  - o associated oral histories.

Confluence of Peace River and Moberly River.

13.

Oral Histories of Treaty No. 8

- Signed by Canadian and Dane-zaa Nations in 1900 at *zalla? tọnaadiichdẹ*(Old Fort) and *tse t'aik'wạ dẹ* (Hudson Hope)

...we had to solemnly assure them that ... they would be as free to hunt and fish after the treaty as they would be if they never entered into ... we assured them that the treaty would not lead to any forced interference with their mode of life...

(Report of Commissioners for Treaty No. 8)

Chief Attachie, a signatory to Treaty No. 8, on the Peace River

14.

Sage and rare medicinal plants on south facing slopes

- Medicinal knowledge, including plant knowledge, is considered highly sensitive in Treaty 8 communities. Participants indicated that the sunny south facing slopes of the Peace River valley are a source of rare medicinal plants that are difficult to find elsewhere. Garter snakes and other species rarely found in the region are also reported to be common in the Peace valley.

Warm south facing slopes of the Peace River valley.

15.

Dane-zaa Prophecy and Existing Hydro Dams on the Peace

- Dane-zaa dreamers and prophets foresaw impacts from dams on the Peace River, and 'fighting over water', long before the WAC Bennett Dam was built.
- Prophecies indicate that building of a third dam is a sign of imminent disaster.
- Loss of Dane-zaa lands and resources due to existing dams is ongoing, including impacts to moose and caribou, as well as other values.
- BC Hydro has not yet addressed historic and ongoing effects of existing dams on the Peace.

WAC Bennet Dam

16.

tse t'aik'wą dę (House before the Rocks / Hudson's Hope) values

- Ancestral gathering place for Dane-zaa families prior to and since Treaty, especially HRFN and WMFN (formerly the 'Hudson's Hope Band'), and still used regularly. Use relies on a constellation of values on both sides of the Peace River including:
  - o permanent camping and habitation areas;
  - o multiple burials, sacred and ceremonial areas;
  - o preferred fishing areas; and,
  - o associated oral histories, including signing of Treaty No. 8.

Dane-zaa at tse t'aik'wą dę (House before the Rocks / Hudson's Hope)

Appendix 3: Sample Informed Consent Documentation

Treaty 8 Tribal Association Site C Traditional Knowledge- Use and Occupancy Project (T8TA Site C TK-UOS)

Declaration of Informed Consent and Permission to use Information

I (name) _____, on this day (complete date) ____, give permission for _____ to interview me for the T8TA Site C TK-UOS Project .

I understand that the study is being conducted by the Treaty 8 Tribal Association and Halfway River First Nation. The purpose of this study is to document the rights and interests of HRFN in the Peace River valley, including areas within and adjacent to the proposed Site C flood area.

By signing below, I indicate my understanding that:

(a) I consent to have my words and responses recorded on maps, in notes, and using audio and video recording equipment.

(b) I am free to not respond to questions that may be asked and I am free to end the interview at any time I wish.

(c) The HRFN will maintain intellectual property rights over information and recordings collected through my participation and may use the information and recordings, including audio, video, or pictures, in pursuit of its claims, and for defending and communicating the rights, interests, and titles of its members. This includes, but is not limited to, sharing information for the purposes of environmental assessment.

(d) The HRFN will ask permission from me or my descendents, before using my information for purposes not indicated above.

For more information, please contact Ros Pokiak at (250) 772-5058

I would like my name included in reports: **yes** **no**

Signature of participant Witness

_____ _____

PIN #:

The Firelight Group

Appendix 4: Use and Occupancy Mapping Interview

Prepared for the T8TA Site C Traditional Knowledge - Use and Occupancy Study Version 4.0

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

T8TA 'Site C': Traditional Knowledge - Use and Occupancy Study

Interview Guide

PRE-INTERVIEW CHECK LIST

- ALWAYS Test your recorders and microphones by play back or listening through headphones.
  a. Audio recorder
  b. Video recorder
- Make sure you have enough note books, pens, and other supplies for the interview.
- Make sure you have all of the maps you need laid out, or prepared in the GIS with tables ready for data entry.
- If you are using overlays, make sure you have marked them all with at least 3 anchor points and the map number.
- Make sure the elders or community members you are interviewing are comfortable. Get them a tea or coffee, and talk for a while about the interviews and why we are doing them. Make everyone as relaxed as possible.
- Read the consent form to the participant and ask them to sign it. Let them know that they don't have to answer any questions that they don't want to.
- Let them know that we will be reporting back to the community and them.
- Start the tape and begin the interview.

Interview Introduction

(read with RECORDER ON before every session)

Today is _____, 2011. We are sitting here interviewing _____ for the **T8TA 'Site C' Traditional Knowledge Use and Occupancy Study.** Thank you for coming.

My name is _____and my co-researchers are _____. We're here at the ____building in [Prophet River/Halfway River/Doig/West Moberly]. _____ has read and signed the consent forms and we have assigned Interview ID # _____. We are going to be recording this interview on a digital video recorder, digital voice recorder, and with notes [on this questionnaire / in this note book]. We'll be mapping digitally using Google Earth Imagery projected on the wall at an eye height of approximately 10km or less (better that 1:50,000). _____ will be doing the digital mapping using points, lines or polygons, and will be entering the site codes and other data as we go. _____ will be taking notes and _____ will be assisting with the interview. Other map images including aerial or satellite photos, as well as existing TUS data already collected from _____ through previous projects, may be projected where useful.

Primary Goal: Building on information from in past projects, T8TA is working with [FIRST NATION] to document community knowledge and use (including loss of use) by members in the area of the proposed Site C project.

Study Area: The study area is large, but we will be focussing on the Site C project area, including the

Peace River Valley, the proposed flood zone and nearby areas. We are also interested in places that may have been flooded by the WAC Bennett dam and other BC hydro projects, and extending along the Peace River valley to Alberta.

In the interview we'll talk about the **Peace River valley and areas nearby – by that, we mean areas within 5km (just over 3 miles) from the area flooded by Site C [show on map], as well as other areas** north of Moberly Lake and south of Fort St. John. We'd like to know how you have used these areas, as well as what you may know from your elders about how members of your community used them in the past.

Storage of Results: A copy of maps we make, as well as the computer files, will be saved to hard drive, and on a portable storage device (memory key). All files will belong to your [NAME OF FIRST NATION], and will be stored and managed by Treaty 8 Tribal Association (T8TA). We'll be getting a copy to

Interview Plan: The interview will take about 2-3 hours to complete. We'll take a break about half way through. There are 3 main sections or types of questions:

- The first part (about an hour) focuses on **your background and experience in the Peace River valley and areas nearby** before and after the WAC Bennett Dam.

- The second part (about an hour), focuses on **specific places or resources, especially in the Peace River valley and areas nearby,** including camps, trails, hunting and fishing areas, berry or plant collection areas, important habitat, cultural or spiritual places, or other places you consider important.

- The third part (shorter) focuses on how you think Site C, if it goes forward, will affect you, your family, and your First Nation.

Some questions are very broad, and others are very detailed. The reason for the detailed questions is so that the T8TA and the four participating communities can be in a better position to defend information, if needed, in court or elsewhere.

If there are things we don't ask about, but you think we should raise in our reports regarding use and Treaty 8 rights in the Site C area, please let us know.

Prepared for the T8TA Site C Traditional Knowledge - Use and Occupancy Study Version 4.0

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

Mapping Note: Every site should be consistently labelled with a code that indicates site use, site # and source respondent (ex: TX02-A08 where the member with ID #08 reports the second mapped place where she has camped in a temporary shelter). This should be followed by the date of the event, if possible.

- *First hand knowledge will be mapped with no modifier to the site code.*
- *second hand knowledge will be mapped with a * after the site code*
- *Commercial use (including guiding / outfitting) will be mapped with a $ after the site code.*
- *Approximate spatial information will be mapped with a ? after the site code.*

1.0 BACKGROUND AND EXPERIENCE

The first part of the interview (about an hour) focuses on **your background and experience in the Peace River valley and areas nearby** before and after the WAC Bennett Dam, and if you have ever practiced Treaty 8 livelihood rights, including hunting, trapping, fishing, camping, plant gathering, or passing on traditional knowledge or language, in the area; how your use of the Peace River valley has changed over time; and if the Peace River Valley and areas nearby are important to you and your practice of rights.

1.1 What is your full name?	
1.2 Where were you born?	
1.3 How old are you? (year born)	
1.4 Where were you raised?	
1.5 Are you a member of the (___ First Nation)?	
1.6 Who were your parents and Grandparents?	

Prepared for the T8TA Site C Traditional Knowledge - Use and Occupancy Study Version 4.0

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

1.7 Have you yourself ever used, or spent time in: -the Parsnip, Finlay, or Peace River Valleys, or areas nearby, **before the WAC Bennett Dam** was built in 1968? -have you heard stories of other members of your First Nation using or living in the area that was flooded, or areas down stream, **before the WAC Bennett dam**? [IF so, what were you / they there for? With who? When? IF not, Why not?]	First hand experience? Second hand knowledge? No use
1.8 Have you yourself ever used, or spent time in:: -the Williston Reservoir area **after the WAC Bennett Dam** was built? [IF so, what were you there for? With who? When? IF not, Why not?]	First hand experience? Second hand knowledge? No use?
1.9 Have you yourself ever used, or spent time in:: -the Peace Valley and nearby areas north or south **after the WAC Bennett Dam** was built? [IF so, what were you there for? With who? When? IF not, Why not?]	First hand experience? Second hand knowledge? No use?
1.10To start with, to your knowledge, what are some of the oldest oral	

histories or stories that you know of about First Nations living in the Peace River valley and nearby areas? Who did you learn these histories or stories from? How are they connected to the valley or nearby areas? PROMPT: For example, creation stories? Dreamer stories? Stories about fights or interactions between people before or after non-First Nation people arrived? treaty signing? map camps, trails, or villages along the shore, or harvesting or fishing areas mentioned per part 2. 1.11To your knowledge, **before the 1968 WAC Bennett Dam** and flooding, were the Finlay, Parsnip, and Peace River Valleys, and areas nearby, used by or important to you or your family? If so, what are some of the most important reasons? 1.12**After the 1968 Dam and flooding,** has the Williston Reservoir (the flooded area) been important to you or your family? If so, why? 1.13 **After the WAC Bennett Dam and flooding,** has the Peace River valley (downstream of the flood area) or nearby areas, been important to you or your family? If so, why? 1.14Are there current barriers to your ability to practice livelihood rights in the Peace Valley and nearby areas?	

Prepared for the T8TA Site C Traditional Knowledge - Use and Occupancy Study Version 4.0

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

What are the biggest ones? 1.15 **After the WAC Bennett Dam and flooding,** did the relationships between families or communities within Treaty 8, or in areas across the mountains, change? If so, did the Dam play a role in the changes? 1.16How did you learn what you know about the Peace River Valley and nearby areas? Who from? 1.17Do you think the WAC Bennett Dam and flooding affected what you were able to learn, or how? 1.18If site C goes forward, do you think you will be able to pass on your knowledge of the Peace River Valley and nearby areas in the way it was passed on to you? PROMPT, IF NEEDED: for example, how to use the river properly, or cultural importance of places along it? 1.19If there were no hydro development in the study area (no dams), would you and your family use the Peace River Valley differently ? If so, how?	

TIME CHECK! Interview should be at about 1 hour - Introduce mapping and break for 15 minutes.

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

2.0 SPECIFIC PLACES OR RESOURCES

In this part of the interview (about an hour), we need to focus on mapping **specific places or resources, especially in the Peace River valley and areas nearby,** that you have relied on in the practice of your Treaty rights, or that you've heard that other members of your family or First Nation relied on in the past. These include camps, trails, hunting and fishing areas, important habitat, or other places you consider important.

Mapping Note: Mark point, line, or polygon labelled with letter code and a number, followed by the community code and the participant ID .

Remember to seek data diamonds.

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

2.1.1 Habitation, Cultural/Spiritual Sites, and Transportation Corridors

First, can you show us all of the places you remember having camped or stayed over night in the Peace River Valley and nearby areas? 2.1.2 Places where you have camped overnight in a tent, lean-to, or other temporary structure and used only once. **MAP using point and code TX= temporary habitation** 2.1.3 Places where you have built or used cabins or other permanent structures that you've returned to more than once **MAP using point and code PX= permanent habitation** 2.1.4 how about places that you have heard stories about your family, or other members of your First Nation, camping at in the past, but where you haven't yourself? **MAP using point and code PX or TX and *** 2.1.5 Do you know of any places in the Peace Valley or nearby that are important as a place where **First Nations people gather** , or where you know members of your family or First Nation have done so in the past? (HRFN: *Dene'tle^{h} Nah Dedii*) **MAP using point: GP= Gathering Place**	

2.1.6 Do you know of any places in the Peace Valley or nearby where members of your First Nation are buried? **MAP using point and code BU = Burials** 2.1.7 Do you know of any places in the Peace Valley or nearby where particular spirit beings live, or where there are special rules about how you act or respect the place? **MAP using point and code SP = spirit** 2.1.8 Do you know of any places in the Peace Valley or nearby where you have gone for ceremonies (drum dances, sweat lodges, or other)? or where you know members of your family or First Nation have done so in the past? **MAP using point and code CP = ceremonial place.** 2.1.9 Are there any places in the Peace Valley or nearby that have special knowledge or stories associated with them – like creation stories, dreamer stories, or histories - or that are used for teaching knowledge to children or others, or where you know members of your family or First Nation have done so in the past? **MAP using point and code TA= Teaching Area**	

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

2.1.10 Are there any places in the Peace Valley or nearby that you know of that have special place names, especially Dene or Cree names? **MAP using point and code PN= Place Name (record name in brackets)** 2.1.11 Are there any places in the Peace Valley or nearby where you have collected medicines or sacred plants, animals, or other materials, or where you know members of your family or First Nation have done so in the past? **MAP using point and code MP= medicine plant** 2.1.12 ***Are any of these plants or resources hard to find outside of the Peace Valley and nearby areas? If so, are you able to tell us what they are?*** 2.1.13 Are there any places in the Peace Valley or nearby where you have accessed foot or quad trails, or roads, used for hunting, fishing, habitation, or other rights based practice? (HRFN: *A'thunne*[h]) **MAP using line and code TR= trail** 2.1.14 Are there any places in the Peace Valley or nearby where you have accessed water routes (creeks, lakes, or rivers) by boat used for hunting, fishing, habitation, or other rights based practice? **MAP using line and code WR= water route**	

2.1.15 **Subsistence, Environmental Feature Values, and Loss of Use Areas**

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Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

Now we'd like to take time to map as many places as we can where you have ever hunted, fished, or collected animal, fish, plant foods, medicines, or other resources[1], as well as special habitats or places that these rely on. Please include any time you were hunting or getting resources on private lands. SUGGESTION: start with the valley bottom and work your way up. 2.1.16 **Can you show us where you have ever killed the following animals to feed your family or community, or use for cultural purposes, or where you know members of your family or First Nation have done so in the past?** **PROMPT all listed species, and MAP using point and code as follows, with year and season in brackets where possible:** MO= moose (HRFN: *'Ada^h*) WDR= white-tailed deer (HRFN: *Ya^h Tunne*) MDR= mule deer BB= black bear (HRFN: *Saas*) GB= grizzly bear (HRFN: *K^{h}leye^h*) BI= bison or Buffalo (HRFN: *Hakii Cho^h*) CA=Caribou (HRFN: *Wa^{h}Zii^h)*	

[1] Other codes if time allows: SO=songbirds, WO=woodpeckers, MB-marsh birds, SH=shorebirds, BU=butterflies, DF= dragonflies, FR=frogs, SN=snakes, BA=bats, SR= small mammals (shrews, mice and voles)

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

EK=Elk (HRFN: *Je^h Zii^h*)	
SH=Sheep	
CH= chicken	
GR= grouse	
RB= rabbit	
MM= whistler or marmot	
PO= Porcupine (HRFN: *Ajii She^h*)	
OG=Other Game	
FURBEARING:	
WO= wolf	
WV= wolverine	
CO= coyote	
SQ= squirrel	
MT= marten	
FI=fisher	
BR= beaver	
MU= muskrat (*Che^h Ka'*)	
OT= Otter	
OFB= Other Fur Bearer	

Prepared for the T8TA Site C Traditional Knowledge - Use and Occupancy Study Version 4.0

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

BIRDS: DU=duck GE=geese SW=swan EA=eagle HA=hawk FL=falcon OW= owls OB= Other Bird FISH: WF= whitefish GD= goldeye SU= sucker LT= lake trout PK= pickerel or Walleye JF= jackfish MR= maria KO=kokanee	

BT=bull trout OF= Other Fish PLANTS AND OTHER BE= berries or wild fruit (species) FP= food plants – roots, bulbs, cambium (species) MS= mosses or mushrooms DP= dye plant BA=Barks used for crafts, construction or other purposes OP= other plant FW= firewood EM= earth material (rocks, clays, vermillion, others) EG= eggs FE= Feathers WA= water (drinking water sources) *2.1.17* ***Are any of these plants, animals or resources hard to find outside of the Peace Valley and nearby areas? If so, are you able to tell us what these are?***	

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

2.1.18 Do you know of any special habitats or environmental features in the Peace Valley and nearby areas? For example calving or mating areas, spawning areas, mineral licks, or horse range? HINT: Go through major animal and plant types **MAP using polygon and code EF= Environmental Feature with type (moose lick, spawning area, horse range, etc) in brackets.** 2.1.19 How do animals move between these special environmental features? [Pay close attention to places where animals cross rivers] **MAP using polygon and code EFC= Environmental Feature Corridor.** 2.1.20 Are there places in the Peace River Valley and nearby areas where where you **or other members of your community used** to hunt, gather, **fish, or practice other rights, but where you do not go anymore because of impacts from industry, or other reasons?** **MAP using polygon and code GLU= General loss of use. Where loss of use is specific: SLU= Specific loss of use.**	

TIME CHECK! Interview should be at about 2hr 30 min.

Now, for the last questions:

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Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

3.0 ARE THERE ANY OTHER IMPORTANT PLACES OR ISSUES YOU THINK WE SHOULD BE DOCUMENTING TODAY?

4.0 BASED ON WHAT WE'VE TALKED ABOUT TODAY. IF SITE C GOES FORWARD, WHAT DO YOU THINK IT WILL MEAN FOR YOU, YOUR FAMILY, AND YOUR FIRST NATION?

Interview Conclusion

(read after every tape session)

Today is _____, 2011.

We have just finished interviewing _____ for the [NAME COMMUNITY] **Treaty 8 Tribal Association Site C Traditional Knowledge Use and Occupancy Study.** Thank you for coming here today.

My name is _____ and I'm here in the _____building with _____. We've given him/her TUS ID #_. We've used ____, _____, _____, and _____ maps at 1:50,000 (or other?) scale and a total of _____ tracks on the digital recorder. Notes are recorded in _____ note book. The interview has taken approximately _____ hours _____ minutes.

Participant: ID#: Interview Date:

Interviewer: Co-interviewer Other Recordings:

KILL SITES

MO = moose
WDR = white-tailed deer
MDR = mule deer
BB = black bear
GB = grizzly bear
BI = bison
CA = caribou
EK = elk
SH = sheep
CH = chicken
GR = grouse
RB = rabbit
MM = whistler or marmot
PO = porcupine
OG = other game

FURBEARING

WO = wolf
WV = wolverine
CO = coyote
SQ = squirrel
MT = marten
FI = fisher
BR = beaver
MU = muskrat
OT = otter
OFB = other fur bearer

BIRDS

DU = duck
GE = geese
SW = swan
EA = eagle
HA = hawk
FL = falcon
OW = owls
OB = other birds

FISH

WF = whitefish
GD = goldeye
SU = sucker
LT = lake trout
PK = pickerel or walleye
JF = jackfish
MR = mariah (burbot)
KO = kokanee
BT = bull trout
OF = other fish

PLANTS AND MEDICINES

BE = berries or wild fruit (species)
FP = food plants – roots, bulbs, cambium (species)
MS = mosses or mushrooms
DP = dye plant
BA = barks used for crafts, construction or other purposes
OP = other plant
FW = firewood
EM = earth material (rocks, clays, vermillion, others)
EG = eggs
FE = feathers
WA = water (drinking water sources)

SPIRITUAL/CULTURAL

BU = burials
SP = spirit
CP = ceremonial place
TA = teaching area
PN = place name
MP = medicine plant

HABITATION

TX = temporary habitation
PX = permanent habitation
TR = trail
WR = water route
EF = environmental feature

Appendix 5: Direct to Digital Capture Method

The methods for spatial data capture (direct to digital mapping) for the study were developed by Dr. Craig Candler and Steven DeRoy of the Firelight Group and were designed to reliably document detailed T8TA community use, knowledge, and avoidance in relation to the Site C.

Interview Team and Materials

Interviews were conducted with at least two team members, plus the participant, present. One team member was primarily responsible for conducting the interview and taking hard copy notes. The second member was primarily responsible for managing the mapping software and recording data within the mapping software used, in this case Google Earth or Google Earth Pro. The majority of interviews were mapped using Google Earth Pro version 6.0.1.2032 running on a windows based laptop with a tablet pen, necessary for drawing lines and areas. A digital projector and laser pointer, digital video camera and tripod were also used as part of the mapping kit.

Study Area

The focal study area was defined as an area 5km around the proposed Project footprint. The study area, and the ability to navigate in Google Earth was explained to each participant at the beginning of the interview through reference to maps projected on the wall.

Base Maps

Due to the size of the study area, and the need for both detail and flexibility, Google Earth imagery was chosen as the digital base map for mapping sites. Using a projector, the map image was projected onto a clear wall or screen. In order to improve readability and help the participant orient themselves, other geographic information system (GIS) shape files were overlaid on top of the Google Earth image. Where conversion from other formats was required, a licensed version of Google Earth Pro was used. Supplemental GIS data originated from the following Government of Canada online GIS data repositories or other sources:

- National Framework – Hydrology, Drainage Network: ftp://ftp.geogratis.gc.ca/frameworkdata/hydrology/analytical/drainage_network/canada/
- Atlas of Canada 1,000,000 National Frameworks Data, Canadian Place Names: http://www.geogratis.gc.ca/download/frameworkdata/popplace/

- National Framework Canada Lands Administrative Boundary (CLAB) Level 1 (First Nation reserves): http://www.geogratis.gc.ca/download/frameworkdata/Cda_Lands_Adm_L1/

- National Topographic System 1:50,000 reference grid: ftp://ftp2.cits.rncan.gc.ca/pub/index/

- Data regarding the footprint of the JPME and PRM, as well as existing Shell mine infrastructure, received by the MCFN from the proponent.

Interview Process

Prior to commencing the interview, informed consent to participate in the interview was documented through signing a consent form. Interviews were recorded using an external digital audio recorder, or the built-in microphone and sound recorder on the laptop for audio files. A digital video camera mounted on a tripod and pointing at the maps projected on the wall recorded the mapping of sites throughout each interview, and provided back up audio. All interviews followed a semi-structured interview guide, and notes were written directly onto the guide or in the interviewer's notebook.

In Google Earth, a folder called "TEK" was created to store all new mapped data. Each participant was given a folder named with his or her participant code (e.g. P01). Within the participants' folder, three folders were created to store newly mapped data. For example, participant "P01" had points stored in the P01_points folder, lines in the P01_lines folder, and areas in the P01_areas folder. Each participant's mapped data (points, lines and areas) were saved as a Keyhole Markup Language (KML) file. The entire database was stored as a KMZ file (KML files are often distributed as KMZ files, which are zipped KML files with a .kmz extension).

We mapped new sites using Google Earth at a scale of 1:50,000 or better. That being said, most sites were mapped at a scale of 1:5,000 or better, increasing the accuracy of the location of sites identified. Where possible, we added timestamps to include month or season, and the year the activity occurred. In some cases, people were able to identify specific dates or the beginning, middle or end of a month.

At the end of the interview, audio files were saved in an audio folder and all video files in the video folder on the computer. Names for audio and digital files were saved in the following format:

[Participant ID]_[Participant Name]_[Interview Date MMMDDYYYY]_[file#].[file type]
For example, **P01_JOHNDOE_FEB282011_1.mp3**

Post-Interview Data Processing

After the interviews were completed, the data was backed up onto a portable hard drive. All data was mapped using a standardized Universal Transverse Mercator, Zone 12 projection. We downloaded a GIS conversion tool developed by the Department of Natural Resources for the State of Minnesota called DNR Garmin (http://www.dnr.state.mn.us/mis/gis/tools/arcview/extensions/DNRGarmin/DNRGarmin.html). DNR Garmin is a reliable tool to convert points, lines and areas collected in Google Earth KML format to ESRI Shape file format. KML files (e.g. P01_points.kml) from the "KML" folder were converted into Shape files (P01_points.shp) and stored in a folder called "Shape." Each dataset was checked for consistency and accuracy before converting new data files.

Once the data was converted into ESRI Shape Files, we applied a geomasking process to protect the confidentiality of the 'buffered data' as defined in the Dec. 16 TLUS Agreement. Sensitive points were randomized using Hawth's "Generate Random Points" tool. This process involved buffering the original points by 250 metres, generating a new random point location within the 250 metre buffered area, and then buffering the new randomized point by 1 kilometre. Hawth's tools were downloaded from ESRI's support pages (www.support.esri.com). Lines and areas were not randomized, but were buffered by 1 kilometre using ArcGIS.

Appendix 6: Curriculum Vitae, Dr. Craig Candler

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Resumé **Craig Candler**, PhD
January, 2010

Education

Ph.D. Cultural Anthropology, University of British Columbia, Vancouver, BC, 2008

M.A. Anthropology, University of Alberta, Edmonton, AB, 1999

B.A. (First Class Honours) Anthropology, University of Alberta, Edmonton, AB, 1996

Craig Candler, Ph.D. (anthropology)

Director, Community Studies and First Nations Consultation

Employment History

The Firelight Group Research Cooperative-Victoria, BC
Director/Community Studies and First Nations Consultation Specialist (2009 to date)

Responsible, as a founding member and director, for helping establish The Firelight Group, a group of aboriginal and non-aboriginal research professionals providing respectful and respected environmental and social science research, consulting, and support services in processes where aboriginal and non-aboriginal interests interact, and where good relationships and quality research tools are desired by all sides. Currently serving as the president of the Firelight Group, tasks include business and organizational development, as well as design, development, and delivery of technical services including community-based traditional knowledge research and documentation systems, environmental and socio-cultural impact assessments and monitoring programs, indigenous land use mapping, archival research, community involvement processes, and First Nations consultation support services.

Golder Associates Ltd. – Victoria, BC
Senior Anthropologist/Traditional Studies and Community Consultation Specialist (2005 to 2009)

As Senior Anthropologist, provided technical leadership to the cultural sciences division of Golder in the fields of traditional studies and First Nations consultation, particularly within the context of environmental impact assessment. Responsible for design, development, and oversight of community-based traditional knowledge research and documentation systems, capacity building initiatives, environmental and socio-cultural impact assessment and monitoring, indigenous land use mapping, public involvement processes, archival research, and First Nations consultation support services. Tasks included leading baseline data collection, environmental assessment, and community involvement components related to community-based traditional use studies and First Nations consultation support, including projects with estimated capital costs in excess of one billion dollars. Projects included mines, wind and other energy developments, civil infrastructure, environmental remediation, and linear energy transmission projects. Key clients and partners included First Nations across BC and western Canada, private industry, and government agencies.

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Resumé **Craig Candler**, PhD
January, 2010

University of British Columbia, PhD Researcher – Vancouver, BC
Lead Researcher, Changing Land Use and Children's Health in Mae Chaem, Northern Thailand (2000 to 2008)

Responsible for designing, grant writing, coordinating, and conducting anthropological research within a multi-method (qualitative and quantitative) and community-based research project on oral histories of land use and child health change in Northern Thailand since the 1950s.

Third Stone Community Research – Edmonton, AB
Anthropological Consultant (1995 to 2005)

Founder and Principal of a private consulting company offering applied anthropological, community-based research and consultation services, specializing in First Nations land use documentation and mapping, and comprehensive socio-cultural and community impact assessment and mitigation. Projects included leading a large multi-year traditional use study for the Treaty 8 Tribal Association of BC, as well as smaller projects for communities and research agencies based in Alberta, BC, Manitoba, and the Northwest Territories.

National Centre for Excellence in Sustainable Forest Management, University of Alberta – Edmonton, AB
Research Coordinator (2000)

Research and funding coordinator for socio-economic, community sustainability, and integrated and cumulative effects related projects supported through the NCE-SFM.

Centre for the Cross-Cultural Study of Health and Healing, University of Alberta – Edmonton, AB
Coordinator and Consultant Liaison (1995 to 1999)

Coordinator of office activities including development of a consulting program for academic and contract research, project proposal development, grant applications, reporting, financial administration, marketing and managing a publishing series, organizing public workshops and lectures, and coordinating volunteer involvement.

Project Experience – Traditional Ecological Knowledge (TEK) and Traditional Use Studies (TUS)

Mikisew Cree First Nation and Athabasca Chipewyan First Nation
Northwest Alberta

Primary Researcher and Project Manager for a TEK/TUS project involving documentation of community use and knowledge along the Athabasca River to inform decisions regarding water withdrawals and oil sands production. Jointly funded through two First Nations, the project involves documentation of First Nations use and interests through interviews and mapping, and understanding the effects water quality and water level change on the practice of aboriginal and treaty rights along a major river and within an ecologically sensitive delta and lake area.

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Resumé **Craig Candler**, PhD
January, 2010

British Columbia Transmission Corporation Southwest British Columbia	Component Lead for an overview-level TUS for planning of a linear transmission project involving archival review, field interviews, and coordinated research with more than forty First Nations with traditional territories in the Fraser Valley, Fraser Canyon, and in the area of Nicola Lake. Tasks included methodology development, interview protocols, First Nations liaison, supervising and participating in mapping interviews and archival review, and leading analysis and reporting.
Kwoiek Creek Hydroelectric Project Southwest British Columbia	Component Lead for community-based TUS conducted for environmental assessment of a run-of-river project, including transmission line, proposed by a First Nation joint venture. The project involved generation of energy and transmission through multiple First Nations territories. Tasks include methodology review, supporting First Nations interviewers to complete baseline, and leading community-based impact assessment and reporting.
Western Canadian Coal Northeast British Columbia	Project Manager for the completion of Socio-Economic and Aboriginal Interests and Use chapters for an Environmental Assessment (EA) application to the BC Environmental Assessment Office (BC EAO) regarding a proposed coal development in northeast BC. The project involved working with First Nations and Metis groups and included methodology review, First Nations and aboriginal liaison, and reporting.
Peace River Coal Northeast British Columbia	Component Lead for overview-level TUS and TEK work conducted for EA purposes for two coal mines and related developments. The project involved working with six First Nations and Metis groups. Tasks have included methodology development, First Nations liaison, archival review, community-based mapping, focus group interviews, and reporting.
North Coast Wind Energy Northwest British Columbia	Component Lead for overview and operational-level TUS proposed within a harmonized BC Environmental Assessment Act (BCEAA)-Canadian Environmental Assessment Act (CEAA) process on the north coast of BC. The project involved a large generation area and more than 100 km of linear transmission corridor involving the traditional territories of three First Nations. Tasks included methodology development, archival review, First Nations liaison, and preliminary coordination of overview-level TUS interviews.
Aseniwuche Winewak Nation Grande Cache, AB	Project Manager and lead researcher for a gap analysis of TUS data used for First Nations consultation purposes, providing specialist support for the optomization of an internal First Nations consultation and referral system, and providing research services in support of oral history interviews and document preparation related to a comprehensive claim.
Treaty 8 Tribal Association Northeast British Columbia	Project Coordinator for all aspects of a large multi-community, multi-year traditional use study (TUS) with a budget in excess of one million dollars, including mapping and TEK interview components, training, project management, site visits, GPS data collection, archival review, GIS and database design, digitization, indigenous toponomy, and oral history. Facilitated negotiation of community consultation and information protection protocols.
Sawridge First Nation and Kapawe'no First Nation Traditional Use Study Central Alberta	Methodology development, interview protocols, First Nations liaison, and proposal development.

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Resumé **Craig Candler**, PhD
January, 2010

Bigstone Cree Nation TUS Gap Analysis Northwest Alberta	Assisted with gap analysis, evaluating community goals and needs, and the potential of an existing TUS data set to meet those goals and needs. Review of digital data, methodologies, and community goals.
Beaver First Nation Traditional Use Study Northwest Alberta	Methodology development, First Nations liaison, training and capacity building workshops on community-based research, mapping strategies, GIS/GPS technology, and proposal writing.
Dene Tha' Consultation Pilot Project Northwest Alberta	Methodology development and expert review of TUS data collection and mapping, digital data capture, and database design. Assisted negotiation of final information sharing and consultation protocols.
Halfway River First Nation Traditional Use Study Northeast British Columbia	Designed and delivered TUS methodology, field work, training, and capacity building in mapping and land use research.
Dene Tsaa Tse K'nai (Prophet River) First Nation Traditional Use Study Northeast British Columbia	Designed and delivered TUS methodology, field work, interviews, design of field recording and GPS strategies, coordination of field visits, training, reporting and capacity building.
Canadian Circumpolar Institute Edmonton, AB	Literature review and critique of emerging GIS and GPS technologies in the context of traditional knowledge research in Canada's north.
Gwich'in Tribal Council and the Sustainable Forest Management Network Winnipeg, MN	Archival research in the Hudson's Bay Archives, archival documentation and report writing on historic environmental change and resource use along the Mackenzie Delta.

Project Experience – Socio-Economic and Cultural Impact Assessment

Western Canadian Coal Northeast British Columbia	Project Manager for the completion of Socio-Economic and TUS chapters for an Environmental Assessment (EA) application to the BC Environmental Assessment Office (BC EAO) regarding a proposed coal development in northeast BC. The project has involved working with First Nations and Metis groups. Tasks have included methodology review, First Nations liaison, and reporting.
Public Works and Government Services Victoria, BC	Design and implementation of public and First Nations involvement, including social studies, related to a risk assessment of contaminants in a heavily used urban industrial waterway.
Treaty 8 Tribal Association Northeast British Columbia	Assisted with design and development, including fundraising, criteria and indicators, and determination of community-relevant VECs (Valued Ecosystem Components) for a community-based and First Nations-led centre for cumulative impact assessment, geared particularly towards the oil, gas, and forestry sectors, and utilizing both community- and science-based knowledge.
World Agroforestry Centre Chiang Mai, Thailand	Design and delivery of a two-year study working within a multidisciplinary team to develop community-based methods for tracing environmental and community health changes over time, particularly with regards to pesticide use and early child health. Methodology development, training, field interviews, analysis, reporting.

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Resumé **Craig Candler**, PhD
January, 2010

Treaty 8 Tribal Association Northeast British Columbia	As-and-when needed technical support and recommendations to local governments towards the resolution of community concerns involving forestry, oil and gas, highways, and agriculture sectors.
Sustainable Forest Management Network Edmonton, AB	Worked as part of a multidisciplinary management team to support and manage socio-economic and cumulative effects related to boreal forest industries and communities. Team included industry, academic, and government representatives.
Bigstone Cree First Nation Northern Alberta	Extended field work and community-based research on the effects of northern industry, particularly pulp and paper development, upon social relations, community factionalism, and the practice of traditional medicine in a Northern Cree community.

Project Experience – First Nation Consultation and Negotiation

BC Hydro Aboriginal Relations and Negotiations Northwest BC	Assisted in leading a consultation team providing specialist First Nations consultation services in relation to the environmental permitting of a large transmission line project in northwestern BC. The project involved multiple First Nations in the area of Terrace, BC, as well as the Nisga'a Nation. Tasks included procedural consultation support, acting as point of contact for First Nation consultation, coordination and documentation of consultations within the environmental assessment process, supporting negotiations regarding memorandums of understanding and provision of capacity funding, as well as support, where appropriate, for negotiation of long-term impact and benefits agreements (IBAs) or other agreements related to project construction and operation.
Mount Hays Wind Farm LP Northwest BC	Component Lead for First Nations consultation services in relation to permitting of a proposed development through provincial and federal processes. The project involved three First Nations and traditional territory interests within an existing municipal boundary. Tasks included procedural consultation support, acting as point of contact for First Nation consultation, coordination and documentation of consultations, facilitation of negotiation regarding letters of understanding and development of accommodation packages including non-financial and financial accommodations, and support for negotiation of a long-term impact and benefits agreement (IBA).
North Coast Wind Energy Northwest British Columbia	Component Lead for First Nations consultation services in relation to a multi-billion dollar project being processed through a harmonized provincial-federal process. The project involved supporting consultation and accommodation discussions involving three First Nations and related traditional territory interests south of Prince Rupert, BC. Tasks included procedural consultation advice, acting as point of contact for First Nation consultation, coordination and documentation of consultations, facilitation of negotiation regarding letters of understanding and development of accommodation packages including non-financial and financial accommodations, and negotiation of long-term impact and benefits agreement (IBA).
Catalyst Paper Corp. Vancouver Island, BC	Project Manager for provision of Public and First Nations consultation support, including analysis of First Nations consultation requirements

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	and strategic advice. Tasks included delivery of consultation tools including letters, contact matrices, project website development, and open house coordination.
Public Works and Government Services Victoria, BC	Project Manager for provision of expert consultation support, including analysis of First Nations consultation requirements under federal policy and recent court decisions. Tasks included project and document review and reporting.
Aseniwuche Winewak Nation Grande Cache, AB	Project Manager for conducting a gap analysis of TUS data used for consultation purposes, and providing expert support for the optomization of an internal First Nations consultation and referral system.
Treaty 8 Tribal Association Northeast British Columbia	Assisted with the design and development of a TUS data system designed for referral and consultation purposes. Tasks included design and implementation of GIS and databases, and negotiation of information sharing protocols.
Dene Tha' Consultation Pilot Project Northwest Alberta	Methodology development and expert review of TUS data collection and mapping, digital data capture, and database design. Assisted negotiation of final information sharing and consultation protocols.

Project Experience – Training and Capacity Building

North Coast Wind Energy Northwest British Columbia	Designed and delivered a week-long training workshop to three north coast First Nations on community-based TUS/TEK research, including traditional use mapping, for environmental assessment purposes. Training included classroom and field components and was taught in collaboration with four community Elder instructors.
Treaty 8 Tribal Association Northeast British Columbia	Design and development (including fundraising) for a community-based and First Nations-led centre for cumulative impact assessment utilizing both traditional and scientific knowledge and criteria for evaluating and monitoring environmental, socio-economic, and health changes.
University of British Columbia Vancouver, BC	Design and delivery of a senior university-level course on the ethnography of Southeast Asia.
University of Alberta Edmonton, AB	Design and delivery of senior university-level courses in the School of Comparative and Religious Studies, and Department of Anthropology.
Northern Lights College Inuvik, NT	Design and delivery of a college-level course on anthropology, community research, and natural resource management for post-secondary Gwich'in and Inuvialuit students.

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Resumé **Craig Candler**, PhD
January, 2010

Professional Affiliations

Canadian Anthropological Society (CASCA) – Member of the CASCA Executive, effective June 2010, representing applied and practicing anthropologists in Canada at the national level.

Canadian Asian Studies Association – Canadian Council for Southeast Asian Studies (CASA-CCSEAS)

American Anthropological Association (AAA)

Society for Applied Anthropology (SfAA)

Selected Publications

Peer Reviewed Publications, Journal Articles, and Proceedings	Craig, Candler, et al. 2010. *As long as the Rivers flow: Athabasca River knowledge and use study*. Alberta: Parkland Institute, University of Alberta.
	Craig, Candler, Rachel Olson, Steven Deroy and Kieran Broderick. Participatory GIS as a Sustained (and Sustainable?) Practice: The Case of Treaty 8 BC. *Participatory Learning and Action*, 54 (2006), p. 325-356.
	Young, David and Craig Candler. 1997. "The Paradoxes of Northern Development in Canada: An Anthropological Perspective," in The Proceedings of the 11th International Abashiri Symposium on Peoples and Cultures of the North, Abashiri, Japan.
	Candler, Craig, David Young, Cliff Pompana and Denise Spitzer. A Hermeneutic Exposition of a Plains Healer's Concept of "The Grandfathers". *Anthropos*, 92 (1996), 115-128.
Books and Theses	Candler, Craig. 2008. *Changing Land Use and Children's Health in Mae Chaem, Northern Thailand*. Ph.D. thesis, University of British Columbia.
	Candler, Craig. 1999. *Healing and Cultural Formation in a Bush Cree Community*. M.A. thesis, University of Alberta.
Scholarly Conference Presentations	Invited Roundtable member for: Anthropological Connections: Networking Practising Anthropologists in Canada, Canadian Anthropological Society (CAS-SCA), Montreal, Canada (2010).
	The Good, the Bad and the Glossy: Anthropology, Land Use Mapping and 'Adequate' First Nations Consultation and Accommodation. Presented at the annual meetings of the Society for Applied Anthropology, Vancouver, Canada (2006).
	Incorporating TEK and Aquatic Toxicity Science. Interactive Workshop Presentation for the Aquatic Toxicity Workshop, Jasper, Canada (2006).
	Transcendent Life (and) Science: Medicine, Ecology, and Flexible Biotechnical Citizenship in a Northern Thai Valley. Presented at the

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32nd Congress of the Canadian Anthropological Society (CAS-SCA), Merida, Mexico (2005).

Globalization in a Pill: Opium, Yaa Baa, and Addictive Modernity in Northern Thailand. Presented at the joint meetings of the Canadian Council for Southeast Asian Studies (CCSEAS) and the Canadian Asian Studies Association East Asian Council (CASA-EAC), Université de Montréal, Canada (2003).

Maps, Dreams, and GIS: Telling Stories with New Technology. Presented at the 27th Congress of the Canadian Anthropological Society (CAS-SCA), University of Calgary, Canada (2000).

The Concept of Significance in Cultural Resource Management: Protecting What Past for Whose Future? Presented at the 1999 Chacmool Conference on Indigenous Peoples and Archaeology, University of Calgary, Canada (1999).

Paper, Pipes and the Pentecost: Healing and Change in a Northern Cree Community. Presented at the 25th Congress of the Canadian Anthropological Society (CAS-SCA), Toronto, Canada (1998).

Reviews and Other

Craig Candler has provided external and/or internal peer review on specialist technical reports, academic articles, and book length works, including peer review of chapters and contributions to Terry Tobias' (2010) landmark work, *Living Proof: the Essential Data-Collection Guide for Indigenous Use-and-Occupancy Map Surveys.*

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The Concept of Significance in Cultural Resource Management: Protecting What Past for Whose Future? Presented at the 1999 Chacmool Conference on Indigenous Peoples and Archaeology, University of Calgary, Canada (1999).

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Appendix 7: Curriculum Vitae, Steven DeRoy

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Resumé **Steven DeRoy** February 17, 2011

Education

BA Geography (in progress), University of Winnipeg, Winnipeg, MB, 2011

GIS/Cartographic Technology, Sir Sandford Fleming College, Lindsay, ON, 1998

Steven DeRoy

Director and Vice President

Employment History

The Firelight Group – Winnipeg, MB

Director and Vice President (2009 to date)

Responsible, as co-founder and director, for helping establish The Firelight Group, a firm of aboriginal and non-aboriginal professionals specialized in providing respectful and respected environmental and social science research, consulting, and support services in processes where aboriginal and non-aboriginal interests interact, and where good relationships are desired by all sides. Tasks include business development, as well as design, development, and delivery of technical services including community-based traditional knowledge research and documentation systems, environmental and socio-cultural impact assessments and monitoring programs, indigenous land use mapping, GIS technical support and training, research, community involvement processes, and First Nations consultation support services.

Centre for Indigenous Environmental Resources – Winnipeg, MB

Research Associate/GIS Specialist (2007 to 2010)

As a Research Associate/GIS Specialist, my primary role was to build a mapping and GIS service at CIER that would support both internal staff and external clients with technical, advisory and professional support on a range of projects. Responsible for design, development, and oversight of an Ontario-wide risk assessment inventory of fuel systems and waste site inventory project; managed, researched and documented good practices for setting up GIS offices in Aboriginal communities across Canada (this resulted in publication of "Good Practices Guide: Setting up and keeping an Aboriginal Mapping Program."); conducted an assessment of land use planning issues for First Nations in Ontario; coordinated an indigenous place names mapping initiative for the Little Grand Rapids First Nation; GIS data manager for the Pimachiowin Aki world heritage site nomination; development of environmental monitoring tools for the Mikisew Cree First Nation; species at risk tool development using CyberTracker software; delivery of comprehensive community planning services; advisory support to Clean Energy and Community Adaptation Program; and internal IT liaison. Clients included First Nations, Ivey Foundation, RBC Blue Water Foundation, INAC, Parks Canada, and GeoConnections/ Natural Resources Canada.

Treaty 8 Tribal Association – Fort St. John, BC

GIS Advisor (2005 to 2006)

Provided mapping and GIS advisory support to six member First Nation communities (Fort Nelson, Prophet River, Halfway River, Doig River, Saulteau, and the West Moberly First Nations), chiefs and councils, internal staff, and to the Treaty 8 negotiations team. Aided in the storing and mapping of traditional use information and maintained a

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comprehensive digital data library containing numerous datasets from diverse government agencies, conservationists & industry; expedited the consultation referral and permitting process through ongoing training and technical support for Treaty 8 land use offices; researched, wrote proposals and secured funding for an online mapping application; participated in joint planning and management activities involving government agencies, industry and Treaty 8 First Nations; and acted as Information Technology manager for 25 client users.

Red Road HIV/AIDS Network – West Vancouver, BC
GIS Technician/Consultant (2004 to 2007)

Managed the web-based mapping system, utilizing ESRI's ArcIMS software, to map out the locations of HIV and AIDS service organizations throughout the province of British Columbia. Also designed and developed 30,000 map guides highlighting HIV/AIDS and health services for both the city of Vancouver and northern British Columbia; represented the Red Road interactive mapping project at various conferences, workshops and meetings; and coordinated the redesign and maintainance of www.red-road.org.

Ecotrust Canada – Vancouver, BC
Aboriginal Mapping Network Coordinator and GIS Mapping Analyst (2002-2004)

Manager for the Aboriginal Mapping Network, with responsibilities including management of program initiatives, presentation of the program to funders, members, and organizations at various conferences and workshops, and co-facilitatation of two workshops with national and international participation addressing issues of concern to aboriginal mappers. Supported identification of funding sources relating to land use and occupancy research (this resulted in publication of "A New Trail: Fundraising for Cultural Research and Land Use and Occupancy Studies - A Reference Guide For Securing Funds."), provided mapping and GIS training and technical support to First Nation communities involved with developing land use plans and bioregional atlases, and maintained the Ecotrust Canada and Aboriginal Mapping Network websites (www.nativemaps.org).

DrakeGIS & Mapping Ltd. – Kelowna, BC
Marketing Manager (2000 to 2002)

Assisted in the development of the company in response to the increasing need for mapping and GIS services in BC. Cultivated strategic affiliations and joint ventures with small consulting companies and First Nation bands; researched, identified and wrote proposals for contract opportunities; project leader for a traditional use study for the Nazko Band Government; responsible for the completion of all mapping phases for fish & fish habitat inventory mapping projects and watershed assessment maps for various clients as well as administrative duties.

Urban Systems Ltd. – Kelowna, BC
GIS/Cartographic Technologist (1999)

Performed tasks for the Digital Information Management and Resource Systems (DIMARS) project including editing watermain, sanitary sewer

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and storm sewer drawings using AutoCAD 14; setting up databases for each drawing in ArcView; and linking data to scanned drawings in PDF.

Computer Master – Mississauga, ON
MicroStation Operator (1999)

Acted as a consultant for the Regional Municipality Of Peel by adding, updating and editing watermain plans and files using MicroStation SE. Involved recording and updating changes made to waterplans into graphic conversion databases using Excel.

Toronto Hydro Electric Commission – Scarborough, ON
CAD Operator (1999)

Produced and created small site plans, single line diagrams, and updated and revised landbase files, strip maps and subdivision maps using IRAS/B within MicroStation SE. Also assisted in training MicroStation SE to co-op students.

Project Experience – Traditional Ecological Knowledge (TEK) and Traditional Use Studies (TUS)

Mikisew Cree First Nation Northern Alberta	Co-researcher and GIS Manager for an Indigenous Knowledge study for assessing Shell-specific oil sands development projects near Fort McKay. The project involved work planning, gap analysis, methodology development, leading and participating in field interviews using direct-to-digital mapping, and First Nations liaison.
Tsleil-Waututh Nation Southern British Columbia	Technical support and training for the Tsleil-Waututh Nation Knowledge and Use Project (Marine and Foreshore). The project involved methodology development, development of a training guide, and leading a direct-to-digital mapping training session with key staff and youth.
Athabasca Chipewyan First Nation Northern Alberta	GIS Manager for a TEK community-based monitoring of Woodland Caribou and Wood Bison herds, funded in part by the Aboriginal Funds for Species at Risk Program (AFSAR). The project involved GIS data management, analysis, and final map production.
Athabasca Chipewyan First Nation Northern Alberta	Co-researcher and GIS Manager for a use and interests assessment for Shell's Jackpine Mine Expansion project and Pierre River Mine project. Key tasks include methodology development, participating in field interviews using direct-to-digital mapping, data management, GIS analysis, map production, and reporting.
Athabasca Chipewyan First Nation Northern Alberta	Co-researcher and GIS Manager for a TEK/TUS project involving documentation of community use and interests assessment for the Total Jocelyn Oil Sands Mining project near Fort McKay. The project involved methodology development, participating in interviews using direct-to-digital mapping, data management, GIS analysis, map production, and reporting.
Athabasca Chipewyan First Nation and the Mikisew Cree First	GIS Manager for the development of relevant base maps and digitization of Traditional Ecological Knowledge data for the Athabasca River Use and Traditional Ecological Knowledge Study. The project involved

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Resumé **Steven DeRoy** February 17, 2011

Nation Northern Alberta	working with researchers, establishing methodologies, GIS pre- and post-processing, and reporting.
Ktunaxa Nation Council Southern British Columbia	GIS Manager and researcher for a TEK/TUS component of an environmental impact assessment for Teck Coal`s proposed mining project. The project involved working with First Nation researchers and included direct-to-digital mapping interviews, GIS pre- and post-processing, and reporting.
God's Lake First Nation Eastern Manitoba	GIS Manager for the digitization of all Traditional Use Study data collected for the Historical Resources Branch of Manitoba. The project involved working with First Nation researchers and included methodology review, GIS pre- and post-processing, and reporting.
Manto Sipi Cree Nation Eastern Manitoba	GIS Manager for the digitization of all Traditional Use Study data collected for the Historical Resources Branch of Manitoba. The project involved working with First Nation researchers and included methodology review, GIS pre- and post-processing, and reporting.
Wabanong Nakaygum Okimawin Eastern Manitoba	GIS Manager for 13 First Nations involved in the collection of Traditional Use Study data for the Wabanong Nakaygum Okimawin East Side Planning Authority. The project involved working with First Nation researchers and included methodology review, GIS pre- and post-processing, and reporting.
Little Grand Rapids First Nation Eastern Manitoba	Project leader for the development of a Saulteaux/Syllabics place names map for the Little Grand Rapids First Nation. The project involved working with two First Nation researchers to document and verify toponyms. Tasks have included methodology development, First Nations liaison, training, community-based mapping, GIS pre- and post-processing, and reporting.
Mikisew Cree Nation Northeast Alberta	Facilitated the development of a community-based, environmental monitoring program using Indigenous Knowledge and Western Science, to record changes in the environment, and to create tools to assist in environmental monitoring. Tasks included conducting community-based research to develop traditional knowledge indicators of environmental health, customization of CyberTracker software to enable the Mikisew Cree First Nation to collect TEK observations in the field, and reporting.
Keeseekoowenin Ojibway First Nation Southern Manitoba	Conducted community-based research for the development of an environmental monitoring program using Indigenous Knowledge and scientific monitoring techniques. Tasks included methodology development, First Nation liaison support, training, customization of CyberTracker software, GIS pre- and post-processing, and reporting.
Coalition of First Nations with Interest in Riding Mountain National Park Southern Manitoba	Completed a needs assessment for completing an Anishnabe Knowledge Study. The report outlined two potential approaches for the Anishnabe Knowledge Study, which differed primarily in the technical skills required for data collection and in the nature of the products that would be developed from the study. Tasks included interviews, literature reviews, methodology development, technical writing, and reporting.

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Saulteau First Nation and the West Moberly First Nations Northeast British Columbia	Conducted a cultural values assessment by integrating land use and occupancy research findings from past studies into the Peace Moberly Tract Land Use Plan. The planning committee consisted of representatives from the BC provincial government, industry and First Nations. Tasks included methodology development, gathered data from numerous research studies from both SFN and WMFN, developed maps that showed the distribution of cultural heritage, and created buffered zones for areas of cultural sensitivity. Also facilitated training workshops for land use personnel from the WMFN to create the maps to be used in the land use plan.
Prophet River First Nation Northeast British Columbia	Provided technical expertise for the development of maps to be used in a land use planning initiative for a 5 square kilometre area around the PRFN's reserve lands. Created a series of maps that integrated scientific and cultural heritage data for a planning initiative between the Oil and Gas Commission (OGC) and the PRFN. The maps were produced for community input on issues affecting hunting, fishing, and other activities.
Doig River First Nation Northeast British Columbia	Provided technical expertise for integrating land use and occupancy research findings from past studies into the communities Treaty Land Entitlement process. Tasks included facilitating training workshops to land use personnel from DRFN to create maps of cultural heritage, and provide technical support during the community consultation process for identifying potential land parcels that would be added to the DRFN reserve lands.
Fort Nelson First Nation Northeast British Columbia	Provided technical and training expertise for the development of a community atlas and mapping of traditional use study research findings. Tasks included facilitating training workshops for a community GIS Trainee, and the development of a community atlas that integrated scientific and cultural data, and digitize traditional use study research findings to create deliverables to the OGC on behalf of the community.
Halfway River First Nation Northeast British Columbia	Provided technical expertise to land use personnel to identify a RCMP historic trail route. Involved researching and identifying maps of historic data highlighting the trail, along with a field reconnaissance with land use personnel from HRFN to GPS the exact location of the trail.
Bigstone Cree Nation TUS Gap Analysis Northwest Alberta	Assisted with gap analysis, evaluating community goals and needs, and the potential of an existing TUS data set to meet those goals and needs. Assessed community land use and occupancy study (CLUOS) data and provided GIS training to staff members.
Aboriginal Mapping Network Vancouver, British Columbia	Interviewed practitioners and researched funding sources that would support Traditional Use Study research activities in First Nation communities that resulted in the development of "A New Trail: Fundraising for Cultural Research and Land Use and Occupancy Studies - A Reference Guide For Securing Funds."
Nazko Band Government Traditional Use Study Central British Columbia	Initiated a Traditional Use Study in accordance with the BC Traditional Use Study guidelines. Project leader for the development of a Traditional Use Study for the Nazko Band Government, coordinating literature reviews, and managing budgets and personnel.

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Resumé **Steven DeRoy** February 17, 2011

Project Experience – Land Use Planning, Atlases and Bioregional Mapping

Athabasca Chipewyan First Nation Northern Alberta	Technical support for the ACFN's Industry Relations Corporation to support on-going consultation with government and industry. Key tasks include digital mapping, data management, and GIS analysis.
Athabasca Chipewyan First Nation Northern Alberta	Technical support for the ACFN's Lower Athabasca Region Plan, editing maps and conducting GIS analysis to consider ACFN's interests and vision for planning.
Fisher River Cree Nation Manitoba	Facilitated workshops for the development of a community vision for watershed planning. Involved methodology development, community consultations, coordination with First Nation Liaisons, mapping, and synthesizing responses for inclusion into a community vision.
Ivey Foundation Northern Ontario	Conducted an assessment of Ontario-based First Nation land use issues to gain a deeper understanding of community-driven, participatory land-use planning priorities. Involved working with First Nations by traveling to and interviewing practitioners, synthesizing data and reporting.
Treaty Relations Commission of Manitoba Manitoba	Produced and designed a 24-page portfolio for the Historical Atlas of First Nations in Manitoba, 2009 Map Portfolio. Involved collaborating with academic researchers and writers, conducting archival and historical research, graphic design and layout, GIS analysis and cartography.
Little Black Bear First Nation Southern Saskatchewan	Provided advisory, technical and training support to the Little Black Bear First Nation for the development of a comprehensive community plan. Involved designing implementation strategies for First Nations involvement, including workshop facilitation, mapping, and synthesizing responses for inclusion into a community vision.
Parks Canada Northwest Territories	In support of the public participation program for the expansion of Nahanni National Park Reserve, develop a 22-layer atlas showing conservation and other values of the area. Prepared relevant data and edited maps for the final production of the Greater Nahanni Ecosystem Atlas. Also prepared satellite imagery suitable for draping on a 3D model.
Whitesand First Nation Northwest Ontario	Collaborated with the Aboriginal Strategy Group to work with the Whitesand First Nation to develop a land use plan vision in Armstrong, Ontario. Involved workshop facilitation and synthesizing responses for inclusion into a community vision document.
Doig River First Nation Northeast British Columbia	Collaborated with Herb Hammond to identify forestry resources within DRFN's territory to give the community options for economic independence. Involved the creation of a series of maps that highlighted forest data (age, species, site class, etc.) that could be analyzed for the visioning process.
Tahltan First Nation Northwest British	Provided technical expertise for the production of maps for the Tahltan First Nation's territory. Involved the creation of a series of maps to

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Columbia	support the community's interest in identifying potential economic opportunities and protection from industrial development activities.
Heiltsuk Nation Central Coast of British Columbia	Provided technical and training expertise for the production of the Heiltsuk Nation's land use plan. Tasks included obtaining, filtering and managing all relevant information (scientific and cultural data), resulting in the production of indicator data, spreadsheets and maps. It also involved facilitating training workshops to the land use personnel to identify and filter cultural data from past TUS research for inclusion into the land use plan.
Sencot'en Alliance Southern British Columbia	Provided technical and training expertise for the development of a bioregional atlas for 5 communities of the Sencot'en Alliance. Involved researching and gathering information and digital data for inclusion into the bioregional atlas. It also involved facilitating training workshops to support land use staff from 5 communities to create maps for the atlas.
Tsleil Waututh Nation Southern British Columbia	Provided technical and training expertise for the development of a park atlas for Say Nuth Khaw Yum (Indian Arm Provincial Park). Researched and gathered information and digital data for inclusion into the park atlas, resulting in over 45 map layers. It also involved facilitating training workshops with the community GIS technician to create maps for the park atlas.
Hupacasath First Nation Southern British Columbia	Provided technical and training expertise for the development of the Hupacasath First Nation's land use plan. Obtained, filtered and managed all relevant information (scientific and cultural data), resulting in the production of indicator data, spreadsheets and maps. Also facilitated training workshops with land use personnel to create maps that would be included in the land use plan.
Nazko Band Government Central British Columbia	Produced a land interest document that provided an overview of the Ndazkoht'en people and their long-term goals and vision. Involved community-based research, interviews and synthesizing results into a comprehensive report.

Project Experience – Capital Infrastructure

Indian and Northern Affairs Canada (INAC) – Ontario region Ontario	Development of a risk assessment inventory database tool for fuel tank systems and wastes disposal sites on Indian reserves throughout Ontario for Indian and Northern Affairs Canada (awarded the ESRI Canada 2009 Award of Excellence). Involved developing a comprehensive implementation plan detailing methodology, managing GIS consultants, provided training and technical support to data collectors, conducted quality assurance, developed training manuals and final reporting.
Swan Lake First Nation Southern Manitoba	Provided technical expertise for the development of a 5-megawatt wind farm on the Swan Lake First Nation. Involved the production of mapping products.
Treaty 8 Tribal Association	Provided technical expertise for the development of a wind farm tenure application in Treaty 8 territory. Involved laying out the site location using

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Northeast British Columbia	3D modelling and developing mapping products.
DIMARS - Summerland Central British Columbia	Conducted GIS data entry and analysis for the Digital Information Management And Resource Systems (DIMARS) project. Involved editing watermain, sanitary sewer and storm sewer drawings and setting up databases that linked to scanned drawings.
Regional Municipality of Peel Southern Ontario	Conducted GIS data entry and analysis for the adding, updating, and editing of water main plans and files for the entire Regional Municipality of Peel.
Toronto Hydro Southern Ontario	Conducted GIS data entry and analysis for small site plans and single line diagrams, and updated and revised land base files, strip maps and subdivision maps.

Project Experience – Health and Social

National Aboriginal Health Organization Canada-wide	Technical lead for the production of numerous mapping products designed for use in highlighting Aboriginal midwifery in Canada. Involved methodology development, pre- and post-GIS analysis, quality assurance, map development and reporting.
Red Road HIV/AIDS Network British Columbia	Technical Lead for the development of a comprehensive listing of HIV/AIDS and health services available to First Nations for the province of British Columbia. Involved methodology development, pre- and post-GIS analysis, quality assurance, map development and reporting.
Red Road HIV/AIDS Network Northern British Columbia	Technical Lead for the development of 10,000 pocket book guides highlighting HIV/AIDS and health services available to First Nations for the northern region of British Columbia. Involved methodology development, pre- and post-GIS analysis, quality assurance, map development, managing graphic design consultants, coordination with print shop, and reporting.
Red Road HIV/AIDS Network Southern British Columbia	Technical Lead for the development of 20,000 pocket book guides highlighting HIV/AIDS and health services available to First Nations for the city of Vancouver. Involved conceptualizing and planning, methodology development, pre- and post-GIS analysis, quality assurance, map development, managing graphic design consultants, coordination with print shop, and reporting.

Conferences/Workshops

- Presenter, Central Boreal Learning Network, November 4-6, 2009 in Montreal, Quebec;
- Presenter, Working Forum on the Duty to Consult: Now What?, October 22-23, 2009 in Edmonton, Alberta;
- Presenter, Keepers of the Water III, August 13-17, 2008 in Fort Chipewyan, Alberta;
- Presenter, Wabanong Nakaygum Okimawin Traditional Area Land Use Plans, June 24-25, 2008 in Winnipeg, Manitoba;
- Presenter, Northern British Columbia GIS Conference 2006, May 30-31, 2006 in Prince George, British Columbia;
- Presenter, Mapping for Change, September 7 – 11, 2005 in Nairobi, Kenya, Africa;

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- Presenter, Indigenous Communities Mapping Initiative Conference, March 10 – 15, 2004 in Vancouver, British Columbia;
- Presenter, Geotec Event "A Spirit of Collaboration", May 16-19, 2003, in Vancouver, British Columbia;
- Presenter, Natural Resources Information Management Forum: Putting Knowledge to Work, 2003 in Richmond, British Columbia;
- Presenter, Intertribal GIS Council Conference 2003, in Coeur D'Alene, Idaho;
- Presenter, Sto:lo Environment Conference, April 16, 2003 in Chilliwack, British Columbia;
- Presenter, UBCIC Land Claims Research Conference, 2003 in Vancouver, British Columbia;
- Presenter, Northern British Columbia GIS Conference 2002, May 2002 in Prince George, British Columbia.

Selected Publications

Journal Articles	Craig, Candler, Rachel Olson, Steven DeRoy and Kieran Broderick. Participatory GIS as a Sustained (and Sustainable?) Practice: The Case of Treaty 8 BC. *Participatory Learning and Action*, 54 (2006), 325-356.
Other	"Direct-To-Digital Mapping Methodology Using Google Earth" guidebook produced by the Firelight Group for the Tsleil-Waututh Nation (2011).
	"Good Practices Guide: Setting up and keeping an Aboriginal Mapping Program" guidebook produced by CIER for GeoConnections and Natural Resources Canada (2010).
	Rachel Eni, Gladys Rowe, and Steven DeRoy. Assessing the Social, Cultural, Health Impacts of Hydro-electric Construction in Fox Lake. Poster presentation at the 10th annual Health Impact Assessment Conference in Rotterdam, Netherlands.

Employment Equity

- Registered with Indian Status through the Ebb & Flow First Nation (Manitoba), Registry Number: 280 00936 01

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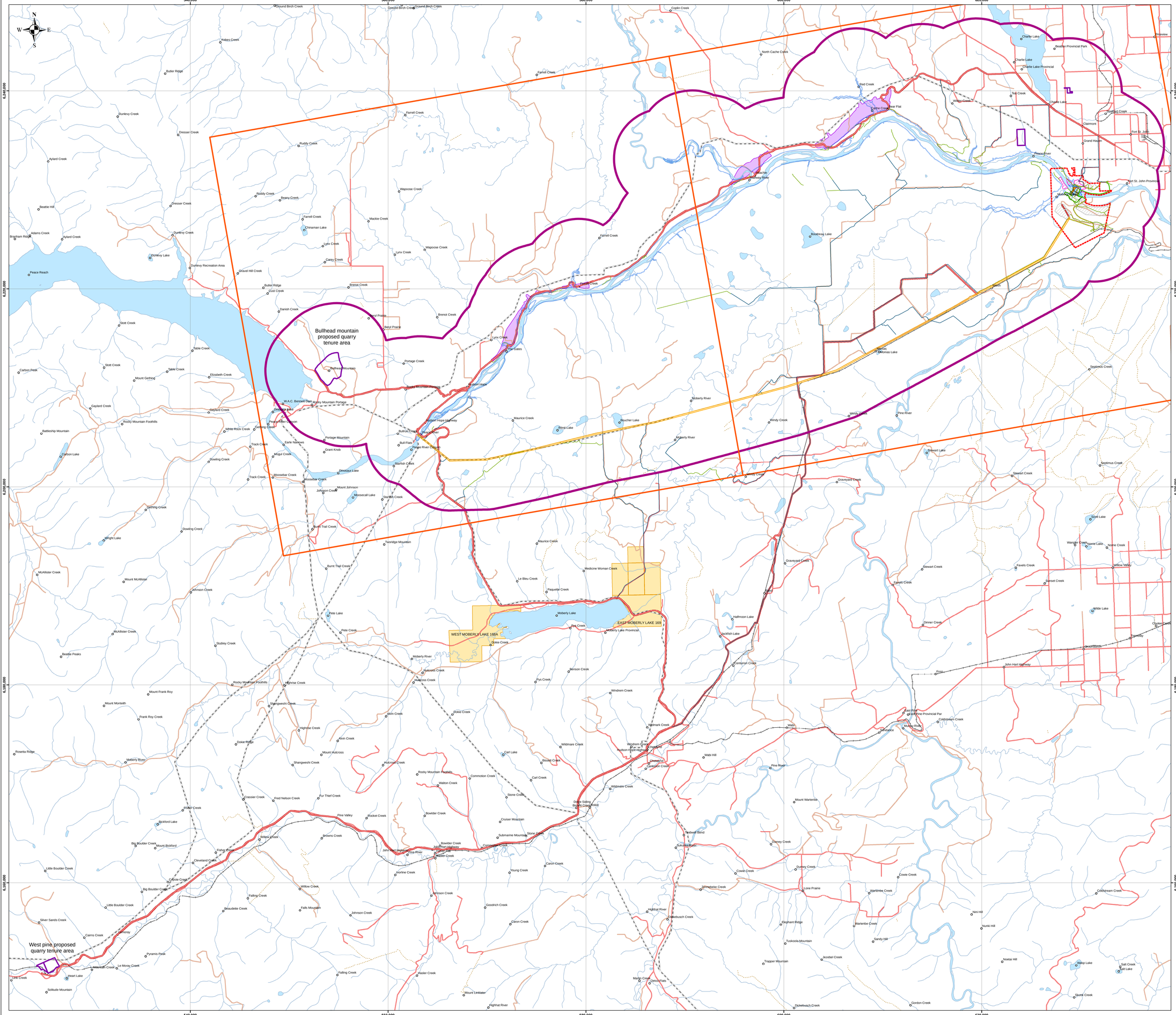
Site C TLUS
Local Study Area Map
Treaty 8 Tribal Association



Map Legend

- Site C proposed local study area (LSA)

Existing transportation features:

- Existing transmission corridor
- Proposed clearing roads - existing upgrade
- Proposed clearing roads - existing non-upgrade
- Transmission line
- Railway
- Road
- Limited use road
- Trail

Temporary project components:

- Dam construction area
- Proposed access roads - new - temporary
- Proposed diversion tunnels and associated works
- Proposed coffer dams - stage 1
- Proposed coffer dams - stage 2
- Proposed excavations and relocations
- Proposed construction facilities
- Proposed excavations for construction materials
- Proposed one-time clearing (14 m.)

Permanent project components:

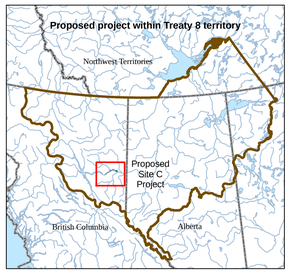
- Proposed dam, generating station and associated structures
- Proposed reservoir
- Proposed access roads - new - permanent
- Proposed widening transmission corridor (35 m.)
- Proposed new transmission corridor
- Proposed access roads - existing
- Highway 29 proposed realignment areas

Base map features:

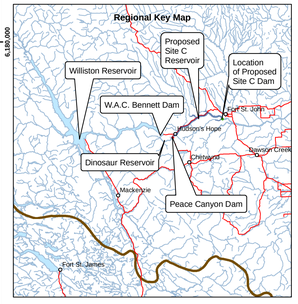
- Two 1:50,000 mapsheets (approximate extent)
- Place names
- Transmission line
- Railway
- Road
- Limited use road
- Trail
- Watercourse
- Waterbodies
- First Nation reserve

BC Hydro Note:
Areas shown provide the best available representation of known investigation areas and project components for the Site C Project as of June 2011. The areas for the dam and generating facilities, associated facilities and working areas correspond to the updated design in the project description report. As the preliminary design advances refinements, reductions and/or additions to these areas should be expected.

Proposed project within Treaty 8 territory



Regional Key Map



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0 3 6 9 12

Kilometers

the firelight group

Map produced by Steven DeRoy of the Firelight Group on Tuesday, June 21, 2011.

Base map data originates from BC Hydro, the National Topographic System, Geobase, and Geogratis (Natural Resources Canada).

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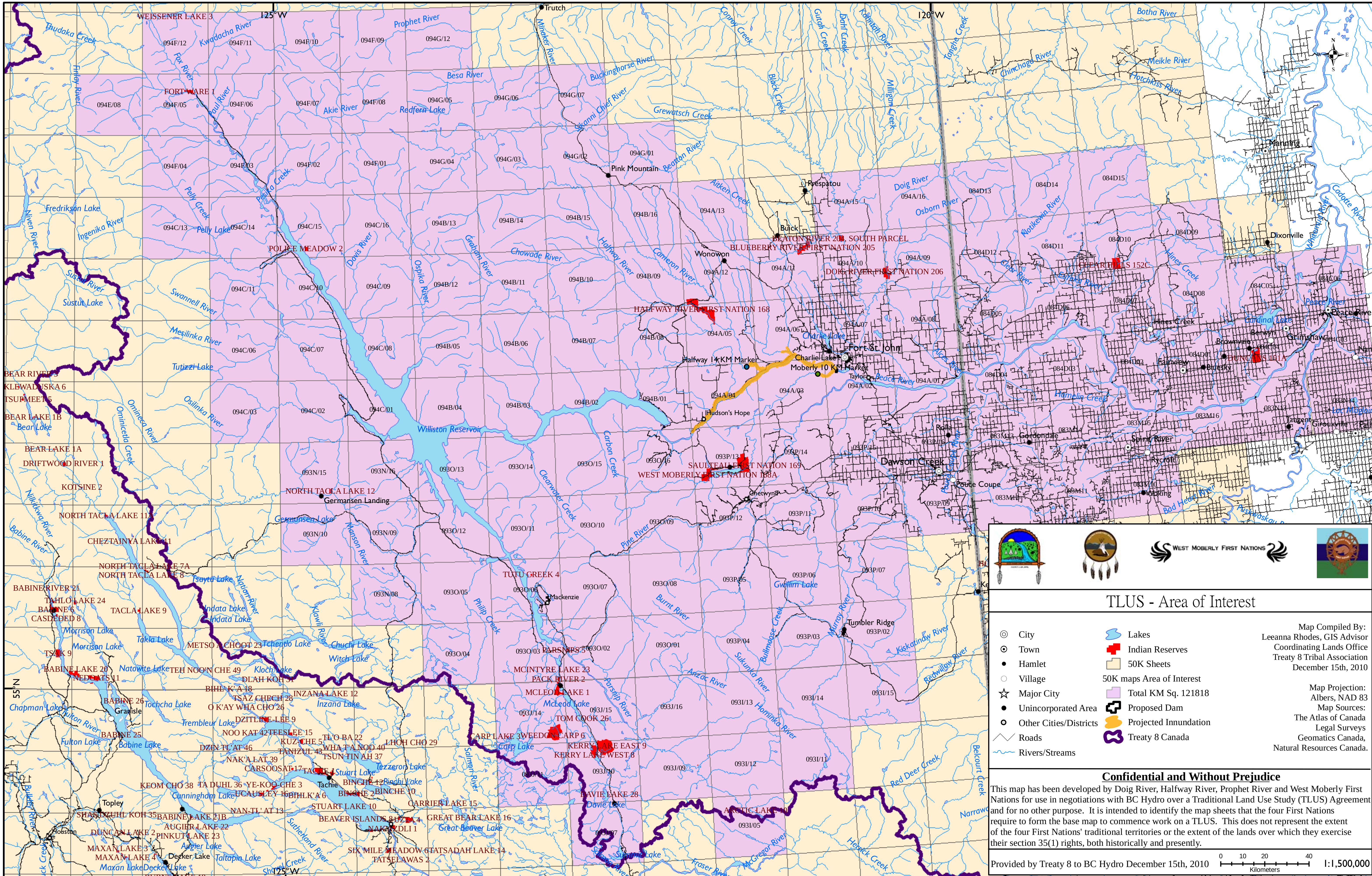
TLUS - Area of Interest
City
Town
Hamlet
Village
Major City
Unincorporated Area
Other Cities/Districts
Roads
Rivers/Streams
Lakes
Indian Reserves
50K Sheets
50K maps Area of Interest
Total KM Sq. 121818
Proposed Dam
Projected Innundation
Treaty 8 Canada
Map Compiled By:
Leeanna Rhodes, GIS Advisor
Coordinating Lands Office
Treaty 8 Tribal Association
December 15th, 2010
Map Projection:
Albers, NAD 83
Map Sources:
The Atlas of Canada
Legal Surveys
Geomatics Canada,
Natural Resources Canada.
West Moberly First Nations
Confidential and Without Prejudice
This map has been developed by Doig River, Halfway River, Prophet River and West Moberly First Nations for use in negotiations with BC Hydro over a Traditional Land Use Study (TLUS) Agreement and for no other purpose. It is intended to identify the map sheets that the four First Nations require to form the base map to commence work on a TLUS. This does not represent the extent of the four First Nations' traditional territories or the extent of the lands over which they exercise their section 35(1) rights, both historically and presently.
Provided by Treaty 8 to BC Hydro December 15th, 2010
0 10 20 40
Kilometers
1:1,500,000
125°W
120°W
55°N
N
E
S
W
Trutch
Pink Mountain
Prespatou
Buick
Wonowon
Fort St. John
Charlie Lake
Taylor
Hudson's Hope
Halfway 14 KM Marker
Moberly 10 KM Marker
Chetwynd
Dawson Creek
Pouce Coupe
Rolla
Tumbler Ridge
Mackenzie
Germansen Landing
Granisle
Topley
Houston
Decker Lake
Tachie
Manning
Dixonville
Hines Creek
Fairview
Bluesky
Brownvale
Berwyn
Grimshaw
Peace River
Nampa
Tangent
Girouxville
Falher
Gordondale
Spirit River
Rycroft
Woking
Guy
WEISSENER LAKE 3
FORT WARE 1
POLICE MEADOW 2
BEATON RIVER 204, SOUTH PARCEL
BLUEBERRY RIVER FIRST NATION 205
DOIG RIVER FIRST NATION 206
HALFWAY RIVER FIRST NATION 168
SAULTEAU FIRST NATION 169
WEST MOBERLY FIRST NATION 168A
CLEAR HILLS 152C
DUNCANS 151A
BEAR RIVER 3
KLEWADUSKA 6
TSUPMEET 5
BEAR LAKE 1B
BEAR LAKE 1A
DRIFTWOOD RIVER 1
KOTSINE 2
NORTH TACLA LAKE 12
NORTH TACLA LAKE 11A
CHEZTAINYA LAKE 11
NORTH TACLA LAKE 7A
NORTH TACLA LAKE 8
BABINE RIVER 21
TAHLO LAKE 24
BABINE 6
CASDEDED 8
TACLA LAKE 9
METSO A CHOOT 23
TSAK 9
BABINE LAKE 20
NEDOATS 11
TEH NOO'N CHE 49
DLAH KOH 31
BIHL' K' A 18
TSAZ CHECH 28
INZANA LAKE 12
BABINE 26
O K'AY WHA CHO 26
DZITLINE-LEE 9
BABINE 25
NOO KAT 42
TEESLEE 15
TL'O BA 22
KUZ-CHE 5
WHA T'A NOO 40
LHOH CHO 29
DZIN TL'AT 46
TANIZUL 43
TSUN TIN AH 37
NAK'A LAT 39
CARSOOSAT 17
TACHE 1
KEOM CHO 38
TA DUHL 36
YE-KOO-CHE 3
BINCHE 12
UCAUSLEY 16
BIHLK'A 6
BINCHE 2
BINCHE 10
CARRIER LAKE 15
NAN-TL' AT 13
STUART LAKE 10
SHAS-DZUHL KOH 35
BABINE LAKE 21B
BEAVER ISLANDS 8
UZTA 4
GREAT BEAR LAKE 16
AUGIER LAKE 22
NAK'AZDLI 1
DUNCAN LAKE 2
PINKUT LAKE 23
MAXAN LAKE 3
MAXAN LAKE 4
SIX MILE MEADOW 6
TATSADAH LAKE 14
TATSELAWAS 2
BURNS LAKE 18
TUTU CREEK 4
PARSNIPS 5
MCINTYRE LAKE 23
PACK RIVER 2
MCLEOD LAKE 1
TOM COOK 26
CARP LAKE 3
WEEDON CARP 6
KERRY LAKE EAST 9
KERRY LAKE WEST 8
DAVIE LAKE 28
ARCTIC LAKE 10
Thudaka Creek
Kwadacha River
Prophet River
Finlay River
Fox River
Paul River
Akie River
Redfern Lake
Besa River
Minaker River
Buckinghorse River
Sikanni Chief River
Grewatsch Creek
Beatton River
Conroy Creek
Gutah Creek
Dahl Creek
Kahntah River
Black Creek
Milligan Creek
Tanghe Creek
Chinchaga River
Botha River
Meikle River
Hotchkiss River
Cadotte River
Whitemud River
Doig River
Osborn River
Notikewin River
Aitken Creek
Clear River
Eureka River
Hines Creek
Peace River
Cardinal Lake
Lac Magloire
Alces River
Hamelin Creek
Pouce Coupe River
Bad Heart River
Puskwaskau River
Pesika Creek
Pelly Creek
Pelly Lake
Fredrikson Lake
Ingenika River
Niven River
Davis River
Ospika River
Graham River
Chowade River
Halfway River
Cameron River
Charlie Lake
Sustut River
Sustut Lake
Swannell River
Mesilinka River
Tutizzi Lake
Osilinka River
Omineca River
Ominicetla Creek
Bear Lake
Williston Reservoir
Carbon Creek
Clearwater Creek
Pine River
Gwillim Lake
Burnt River
Murray River
Bullmoose Creek
Kiskatinaw River
Redwillow River
Sukunka River
Anzac River
Hominka River
Red Deer Creek
Belcourt Creek
Narraway River
Herrick Creek
McGregor River
Fraser River
Summit Lake
Salmon River
Davie Lake
Carp Lake
Parsnip River
McLeod Lake
Philip Creek
Manson River
Germansen Lake
Nilkitkwa River
Babine River
Tsayta Lake
Nation River
Indata Lake
Klawli River
Takla Lake
Morrison Lake
Tchentlo Lake
Chuchi Lake
Witch Lake
Natowite Lake
Kloch Lake
Inzana Lake
Chapman Lake
Tochcha Lake
Fulton River
Trembleur Lake
Fulton Lake
Babine Lake
Stuart Lake
Tezzeron Lake
Pinchi Lake
Cunningham Lake
Great Beaver Lake
Bulkley River
Sutherland River
Augier Lake
Taltapin Lake
Maxan Lake
Decker Lake
Buck Creek
Shovel Creek
094F/12
094F/11
094F/10
094F/09
094G/12
094E/08
094F/05
094F/06
094F/07
094F/08
094G/05
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084D01
084C04
084C03
083M13
083M14
083M15
083M16
083N13
083N14
083M12
083M11
083M10

MAP W-1
Comprehensive Study Results

Inset Map: West Pine Proposed Tenure Quarry Local Study Area

DRAFT

Treaty 8 Tribal Association Map Note:
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Map Legend

Cultural Use Values:

- Buffered data (BU, CP, MP, SP)
- Heritage resources
- Cultural areas
- Place name
- Cultural plants (BA)
- Teaching area
- Feathers
- Cultural lines

Environmental Use Values:

- Environmental areas
- Environmental corridor
- Environmental feature

Habitation Use Values:

- Habitation areas
- Permanent habitation
- Gathering place
- Temporary habitation

Subsistence Use Values (harvesting locations only):

- Subsistence areas
- Subsistence lines
- Beaver
- Berries or wild fruit
- Bison
- Black bear
- Bull trout
- Caribou
- Chicken / Grouse
- Coyote
- Duck
- Earth material
- Eggs
- Elk
- Firewood
- Food plants
- Geese
- Jackfish
- Lake trout
- Marten
- Moose
- Mule deer
- Muskrat
- Other fish
- Other fur bearer
- Pickerel or walleye
- Porcupine
- Rabbit
- Sheep
- Sucker
- Drinking water sources
- White-tailed deer
- Whitefish

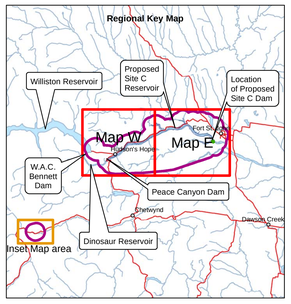
Transportation Use Values:

- Transportation lines
- Water route

Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)

Regional Key Map



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Kilometers

the firelight group

Map produced by Steven DeRoy of the Firelight Group on Thursday, October 13, 2011.

Base map data originates from BC Hydro, the National Topographic System, Geobase, and Geogratis (Natural Resources Canada). Map projected to UTM, Zone 10, NAD 83.

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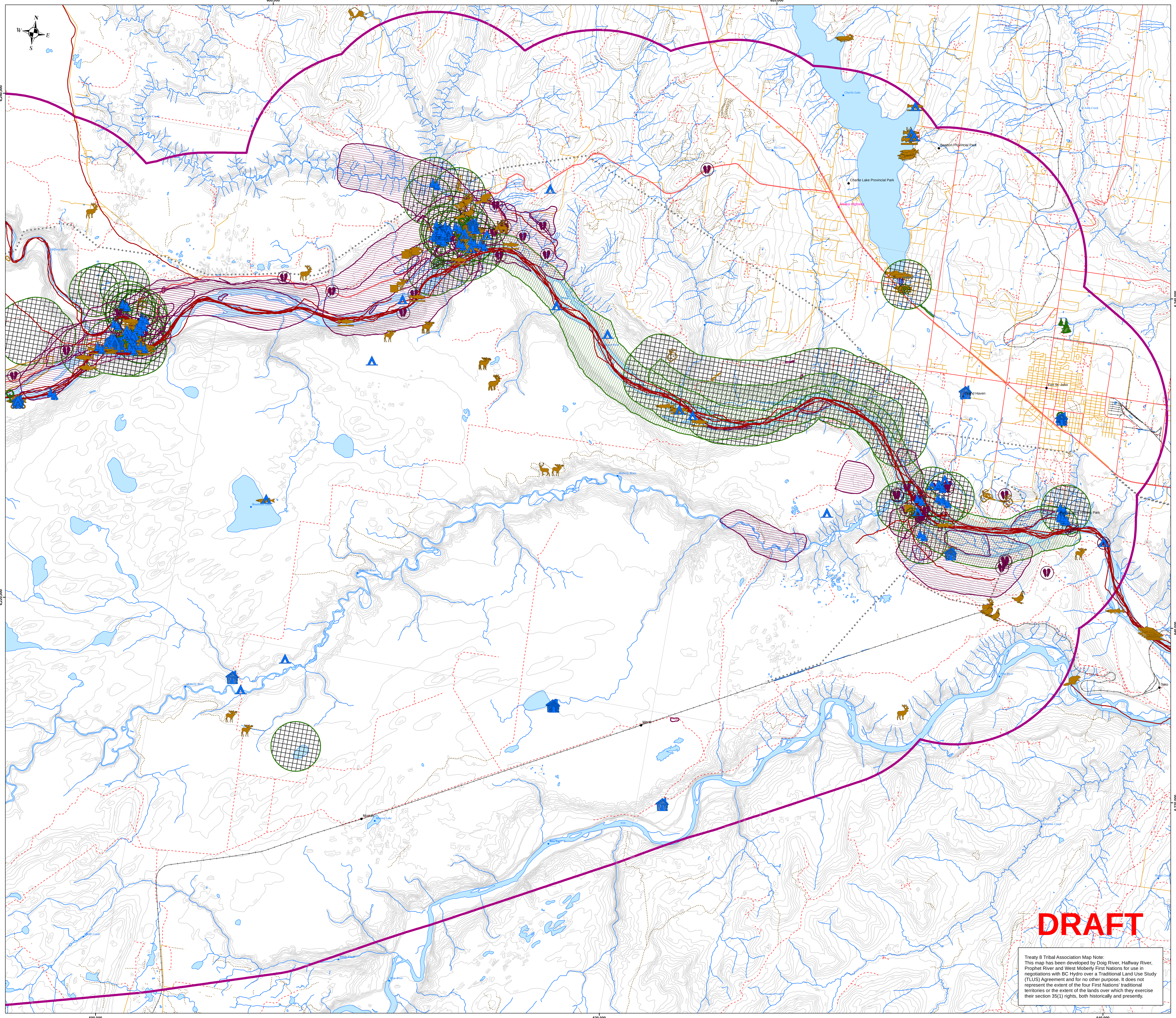
MAP E-1
Comprehensive Study Results



Map Legend

Cultural Use Values:

- Buffered data (BU, CP, MP, SP)
- Heritage resources
- Cultural areas
- Place name
- Cultural plants (BA)
- Teaching area
- Feathers
- Cultural lines

Environmental Use Values:

- Environmental areas
- Environmental corridor
- Environmental feature

Habitation Use Values:

- Habitation areas
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- Geese
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- Berries or wild fruit
- Marten
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- Moose
- Black bear
- Mule deer
- Bull trout
- Muskrat
- Caribou
- Other fish
- Chicken / Grouse
- Other fur bearer
- Coyote
- Pickerel or walleye
- Duck
- Porcupine
- Earth material
- Rabbit
- Eggs
- Sheep
- Elk
- Sucker
- Drinking water sources
- Firewood
- White-tailed deer
- Food plants
- Whitefish

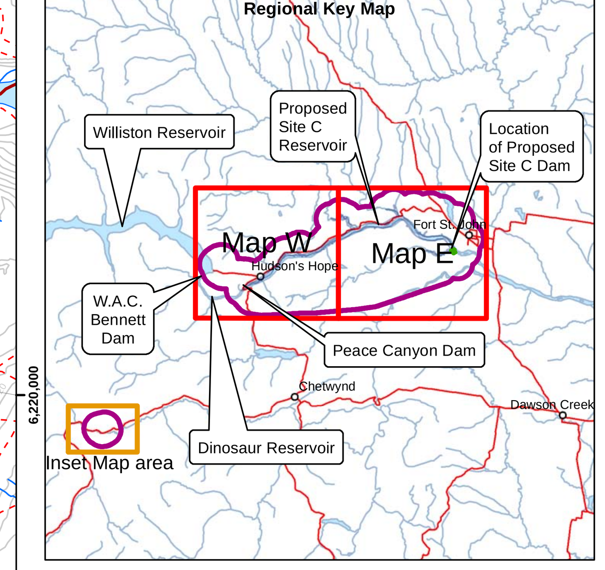
Transportation Use Values:

- Transportation lines
- Water route

Base Map Features:

- First Nation reserve
- Highways
- Site C proposed local study area
- Major roads
- Waterbodies
- Roads
- Watercourse
- Limited use roads
- Transmission lines
- Trails
- Railways
- Contours (20 metre)

Regional Key Map



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Kilometers

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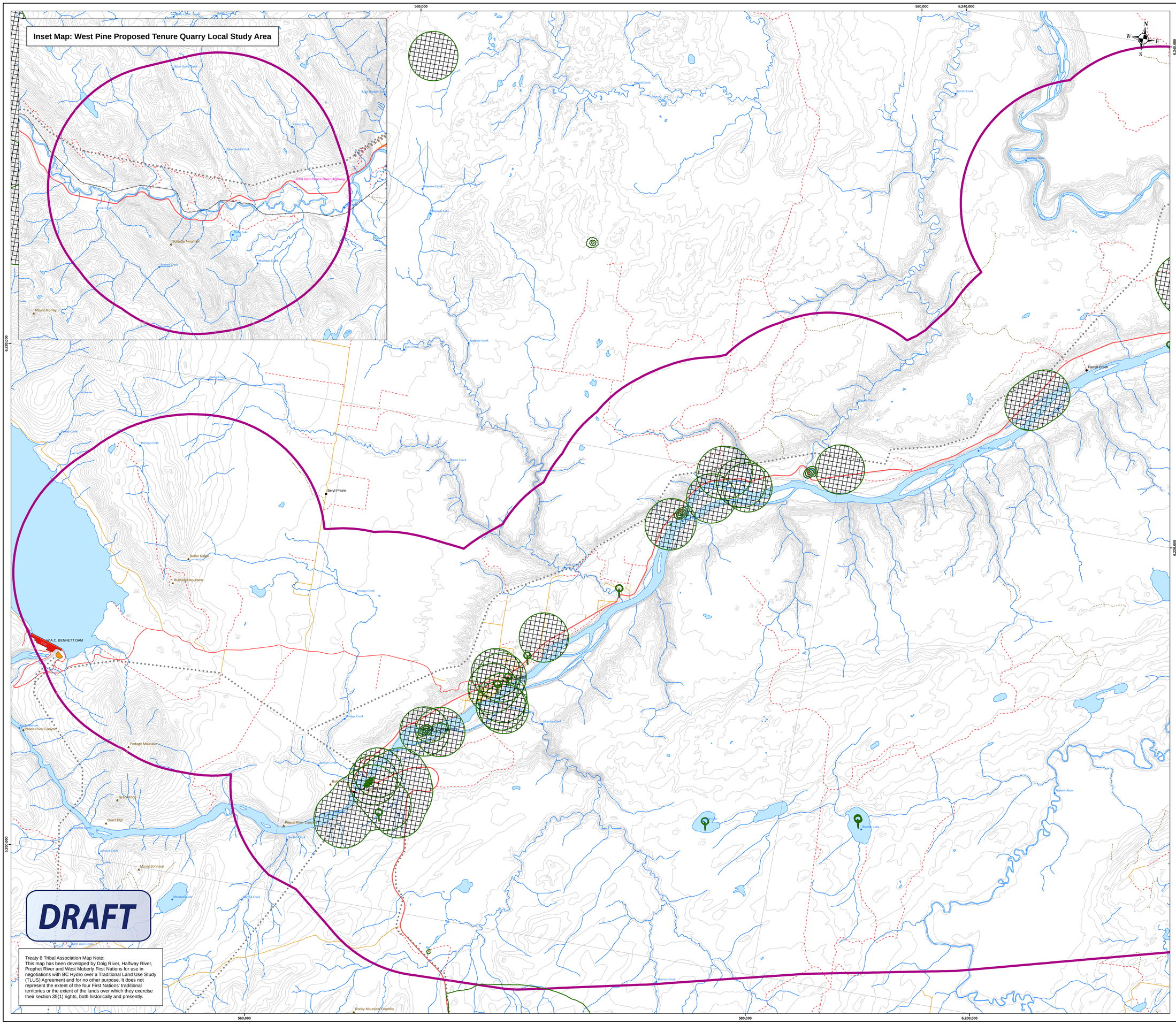
MAP W-2
Cultural Use Study Results



DRAFT

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Map Legend

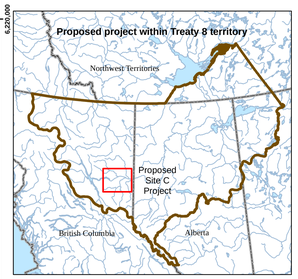
Cultural Use Values:

- Buffered data (BU, CP, MP, SP)
- Cultural areas
- Cultural plants (BA)
- Feathers
- Heritage resources
- Place name
- Teaching area
- Cultural lines

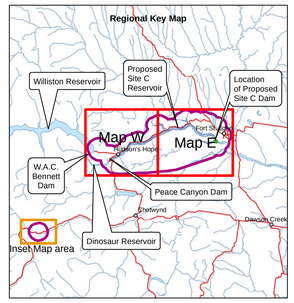
Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)

Proposed project within Treaty 8 territory



Regional Key Map



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Kilometers

the firelight group

Map produced by Steven DeRoy of the Firelight Group on Thursday, November 3, 2011.

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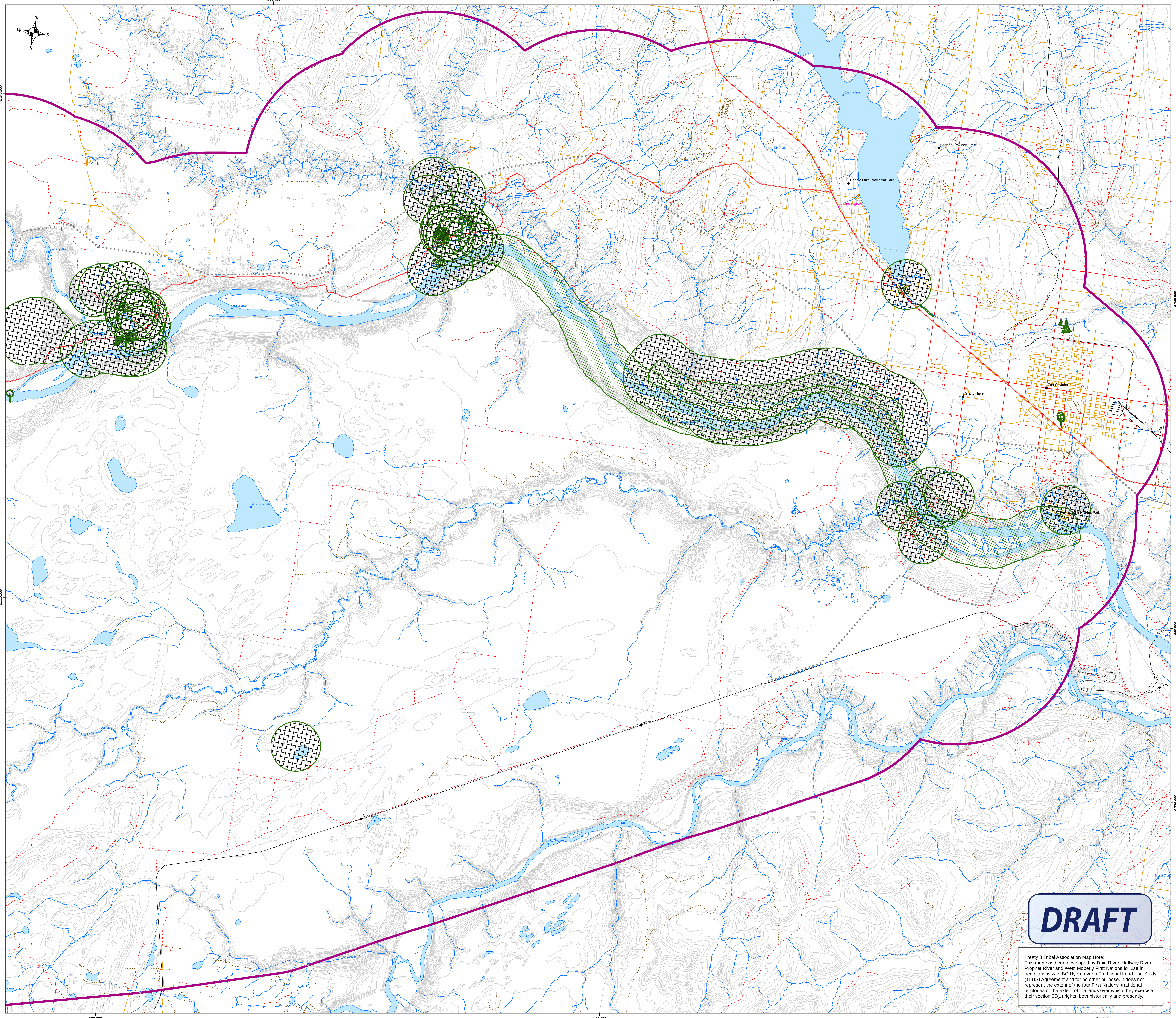
MAP E-2
Cultural Use Study Results



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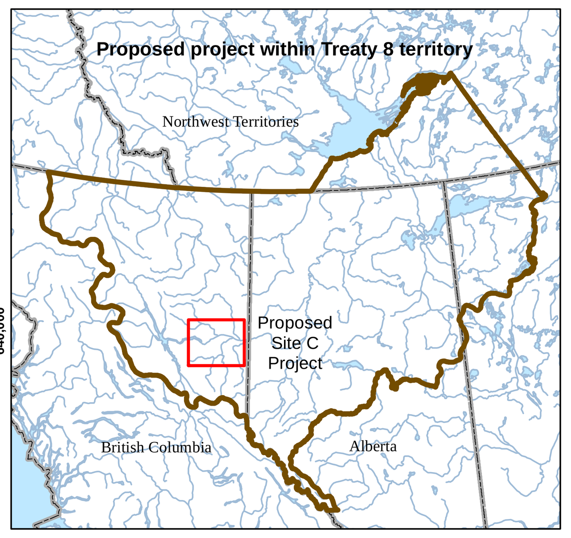
Map Legend

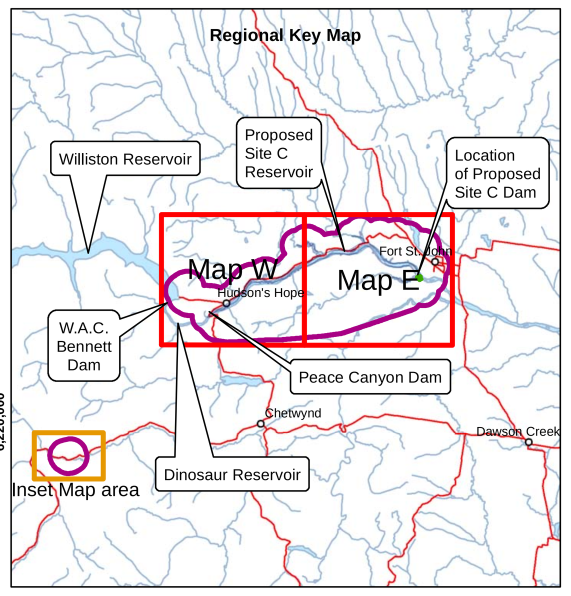
Cultural Use Values:

- Buffered data (BU, CP, MP, SP)
- Heritage resources
- Cultural areas
- Place name
- Cultural plants (BA)
- Teaching area
- Feathers
- Cultural lines

Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)





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Kilometers

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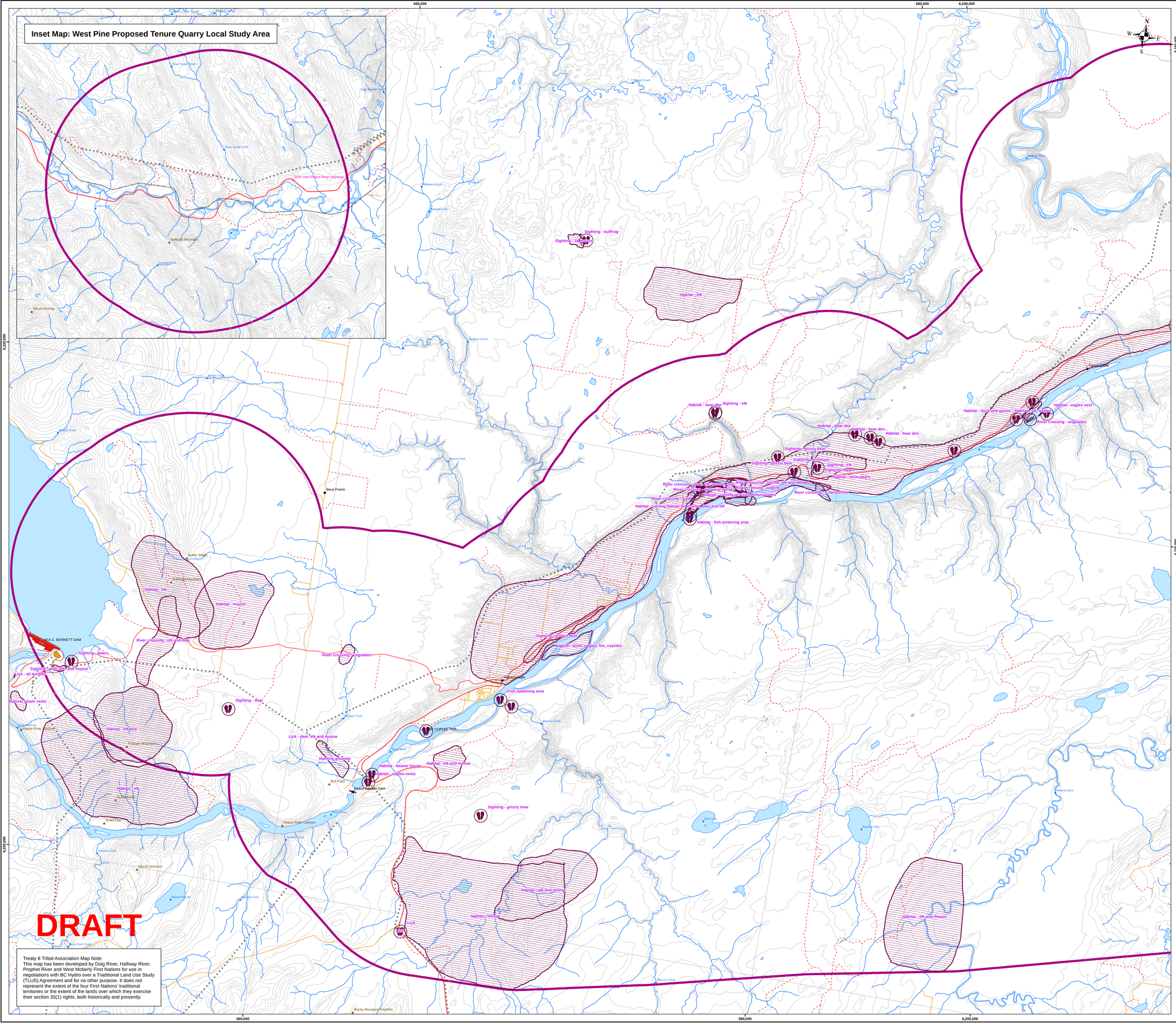
MAP W-3
Environmental Study Results



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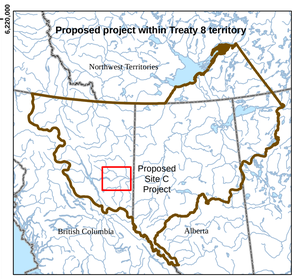
Map Legend

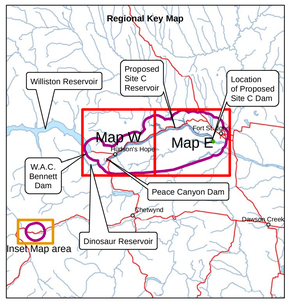
Environmental Use Values:

- Environmental areas
- Environmental corridor
- Environmental feature

Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)





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Kilometers

the firelight group

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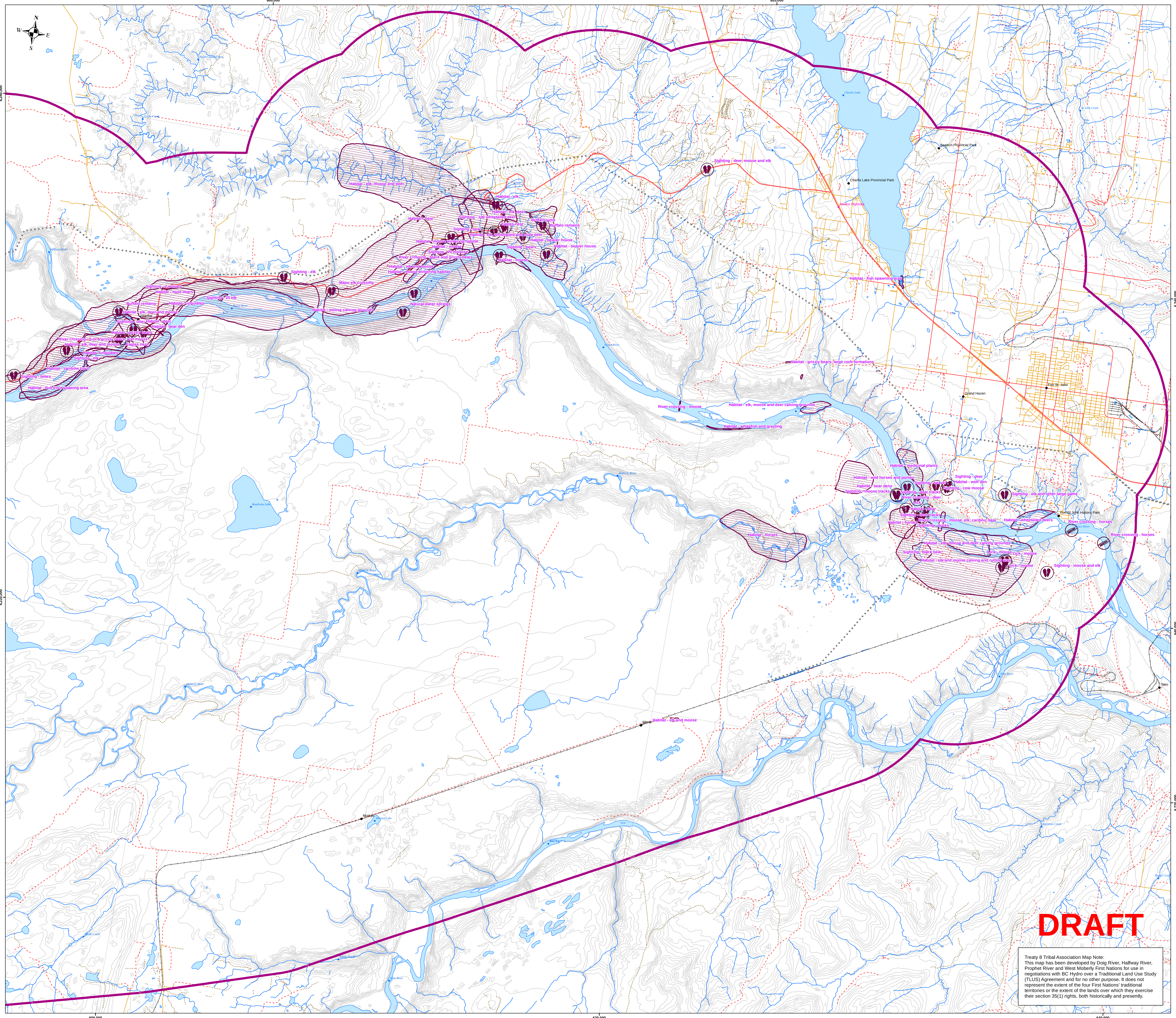
MAP E-3
Environmental Study Results



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Map Legend

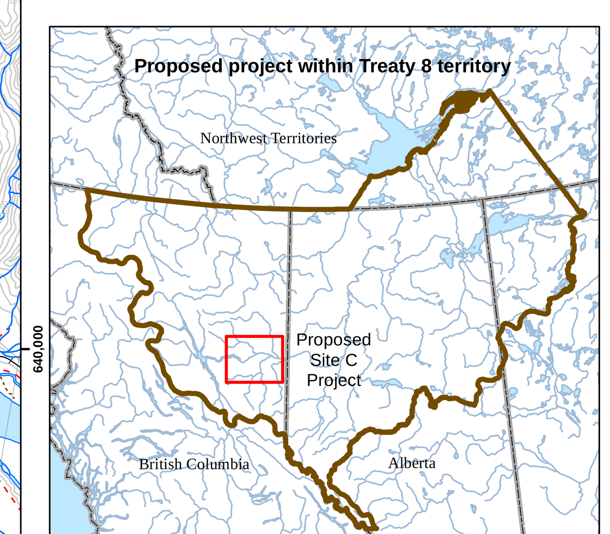
Environmental Use Values:

- Environmental areas
- Environmental corridor
- Environmental feature

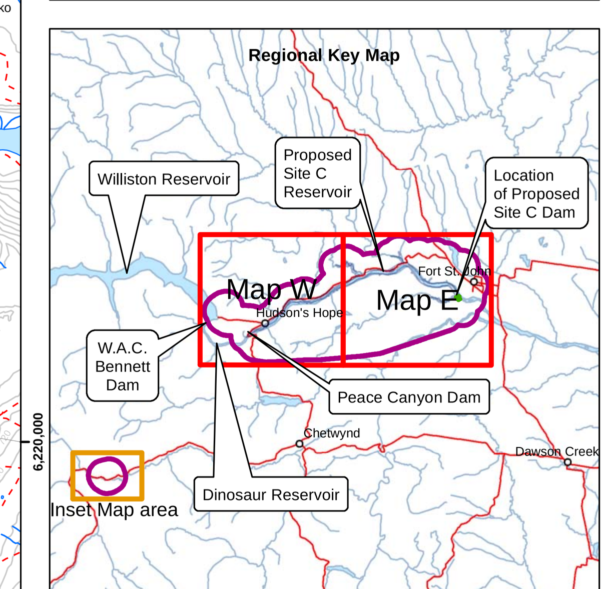
Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)

Proposed project within Treaty 8 territory



Regional Key Map



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Kilometers

the firelight group

Map produced by Steven DeRoy of the Firelight Group on Thursday, November 3, 2011.

Base map data originates from BC Hydro, the National Topographic System, Geobase, and Geogratis (Natural Resources Canada). Map projected to UTM, Zone 10, NAD 83.

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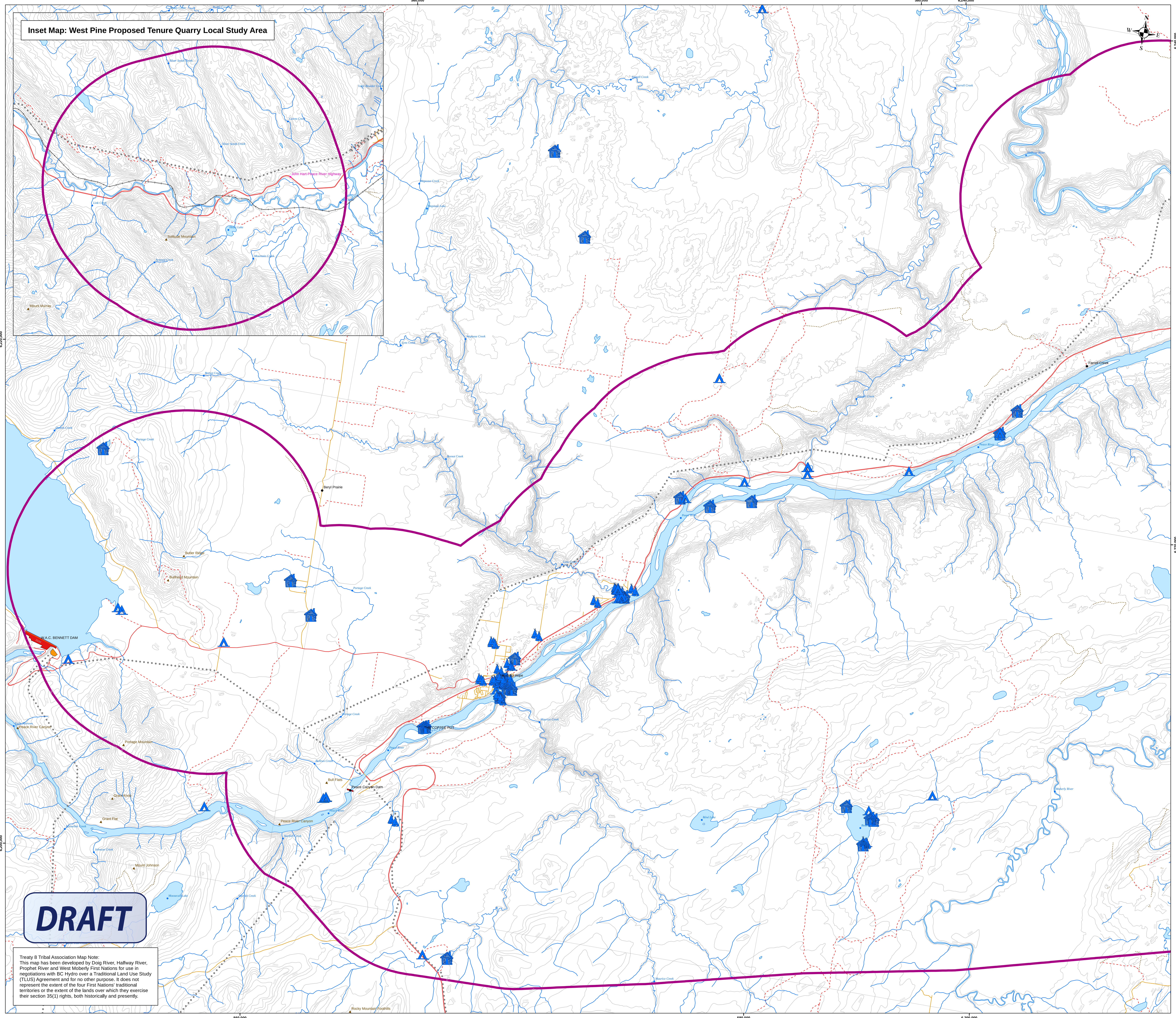
MAP W-4
Habitation Use Study Results



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Map Legend

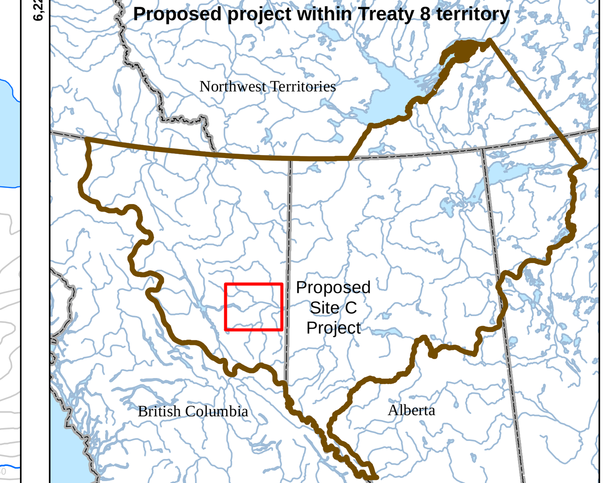
Habitation Use Values:

- Habitation areas
- Permanent habitation
- Gathering place
- Temporary habitation

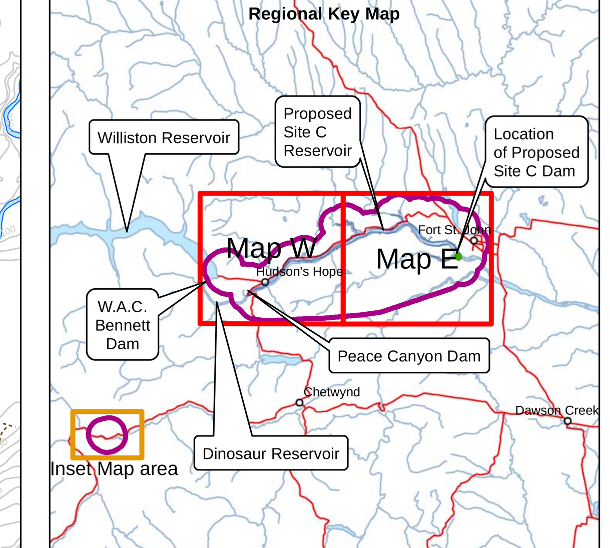
Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)

Proposed project within Treaty 8 territory



Regional Key Map



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Kilometers

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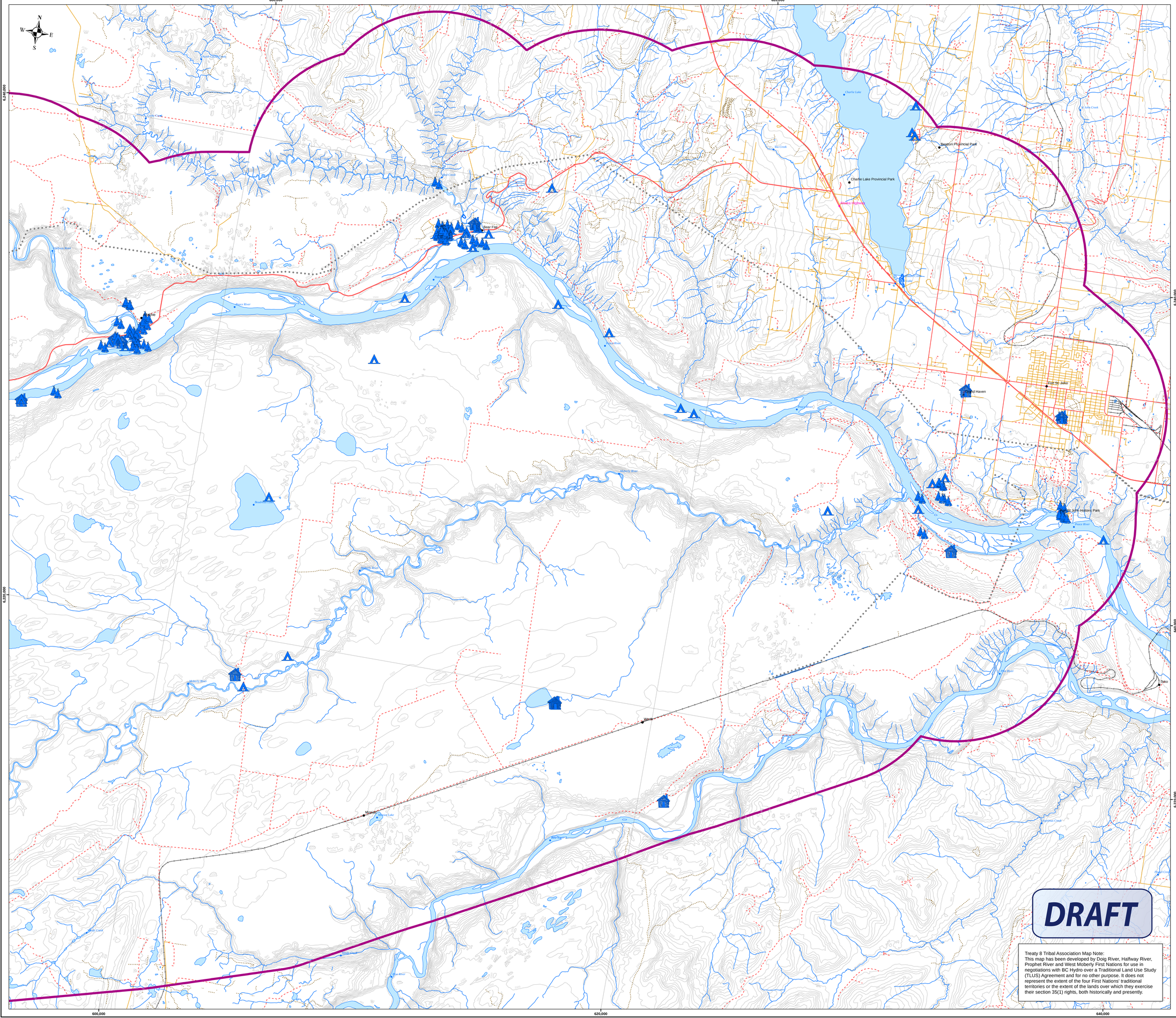
MAP E-4
Habitation Use Study Results



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Map Legend

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- Habitation areas
- Permanent habitation
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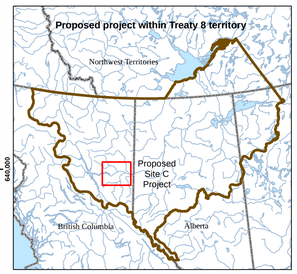
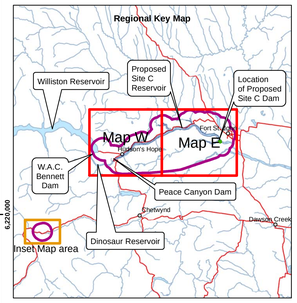
- Temporary habitation

Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
- Roads
- Limited use roads
- Railways
- Trails
- Contours (20 metre)





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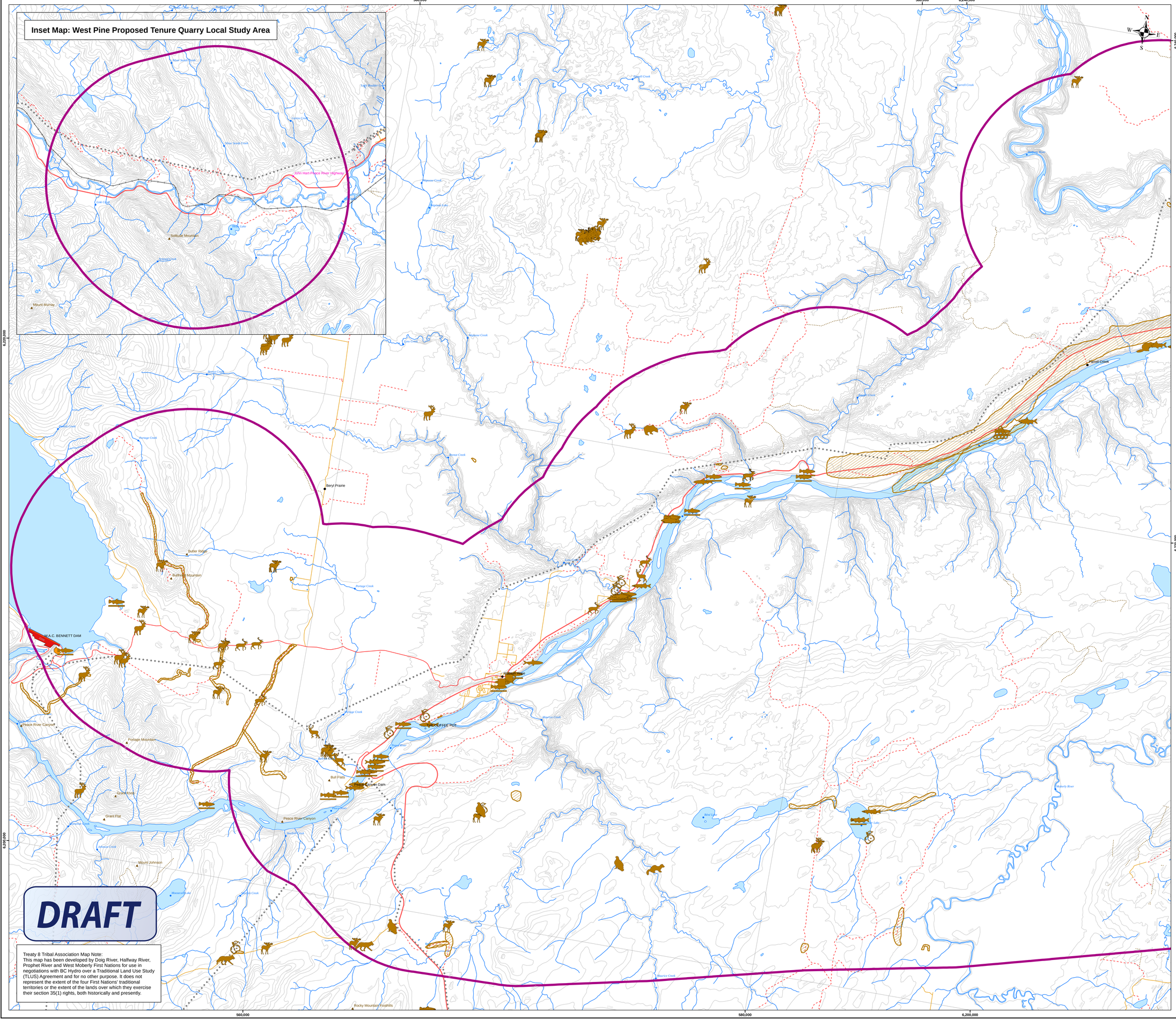
MAP W-5
Subsistence Use Study Results



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Map Legend

Subsistence Use Values (harvesting locations only):

- Subsistence areas
- Subsistence lines
- Beaver
- Berries or wild fruit
- Bison
- Black bear
- Bull trout
- Caribou
- Chicken
- Coyote
- Duck
- Earth material
- Eggs
- Elk
- Firewood
- Food plants
- Geese
- Grouse
- Jackfish
- Lake trout
- Marten
- Moose
- Mule deer
- Muskrat
- Other fish
- Other fur bearer
- Pickerel or walleye
- Porcupine
- Rabbit
- Sheep
- Sucker
- Drinking water sources
- White-tailed deer
- Whitefish

Base Map Features:

- First Nation reserve
- Site C proposed local study area
- Dam areas
- Transmission station
- Waterbodies
- Watercourse
- Transmission lines
- Highways
- Major roads
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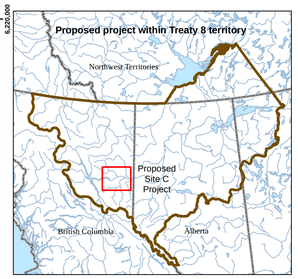
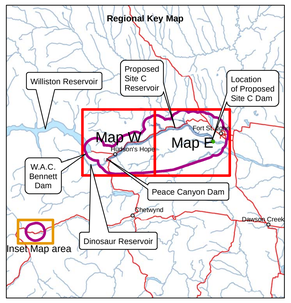
- Railways
- Trails
- Contours (20 metre)

Proposed project within Treaty 8 territory



Regional Key Map



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Kilometers

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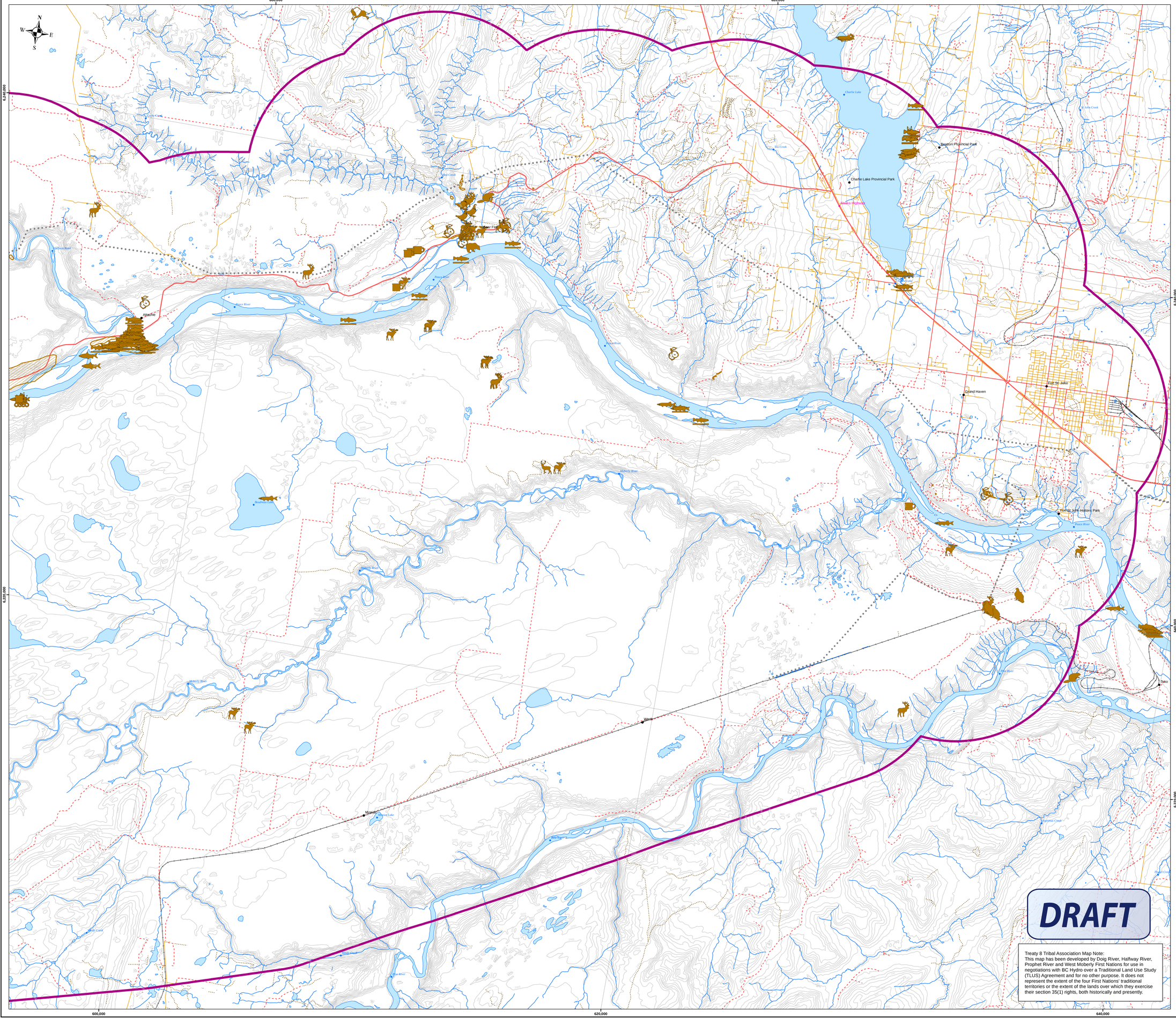
MAP E-5
Subsistence Use Study Results



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- Sheep
- Sucker
- Drinking water sources
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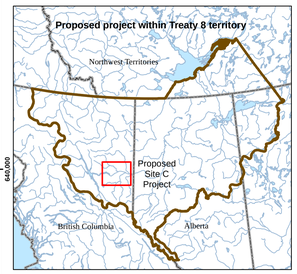
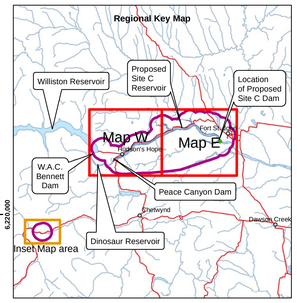
- Railways
- Trails
- Contours (20 metre)





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Kilometers

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