

# Heritage Resources Management Plan

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*Site C Clean Energy Project*  
*Revision 1: June 5, 2015*

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## 1.0 Background

### 1.1 The Site C Clean Energy Project

The Site C Clean Energy Project (the Project) will be the third dam and generating station on the Peace River in northeast B.C. The Project will provide 1,100 megawatts of capacity and about 5,100 gigawatt hours of energy each year to the province's integrated electricity system. The Project will be a source of clean, reliable and cost-effective electricity for BC Hydro's customers for more than 100 years.

The key components of the Project are:

- an earthfill dam, approximately 1,050 metres long and 60 metres high above the riverbed;
- an 83 kilometre long reservoir that will be, on average, two to three times the width of the current river;
- a generating station with six 183 MW generating units;
- two new 500 kilovolt AC transmission lines that will connect the Project facilities to the Peace Canyon Substation, along an existing right-of-way;
- realignment of six segments of Highway 29 over a total distance of approximately 30 kilometers; and
- construction of a berm at Hudson's Hope.

The Project will also include the construction of temporary access roads, a temporary bridge across the Peace River, and worker accommodation at the dam site.

### 1.2 Project Benefits

The Project will provide important benefits to British Columbia and Canada. It will serve the public interest by delivering long term, reliable electricity to meet growing demand; contribute to employment, economic development, ratepayer, taxpayer and community benefits; meet the need for electricity with lower GHG impact than other resource options; contribute to sustainability by optimizing the use of existing hydroelectric facilities, delivering approximately 35 per cent of the energy produced at the W.A.C. Bennett Dam, with only five per cent of the reservoir area; and include an honourable process of engagement with First Nations and the potential for accommodation of their interests.

### 1.3 Environmental Assessment Process

The environmental assessment of the Project has been carried out in accordance with the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), the *BC Environmental Assessment Act* (BCEAA), and the *Federal-Provincial Agreement to Conduct a Cooperative Environmental Assessment, Including the Establishment of a Joint Review Panel of the Site C Clean Energy Project*. The assessment considered the environmental, economic, social, heritage and health effects and benefits of the Project, and included the engagement of Aboriginal groups, the public, all levels of government, and other stakeholders in the assessment process.

Detailed findings of the environmental assessment are documented in the Site C Clean Energy Project Environmental Impact Statement (EIS), which was completed in accordance with the Environmental Impact Statement Guidelines (EIS Guidelines) issued by the Minister of Environment of Canada and the Executive Director of the Environmental Assessment Office of British Columbia. The EIS was submitted to regulatory agencies in January 2013, and amended in August 2013 following a 60 day public comment period on the assessment, including open house sessions in Fort St. John, Hudson's Hope, Dawson Creek, Chetwynd, town of Peace River (Alberta) and Prince George.

In August 2013, an independent Joint Review Panel (JRP) commenced its evaluation of the EIS, and in December 2013 and January 2014 undertook five weeks of public hearings on the Project in 11 communities in the Peace region, including six Aboriginal communities. In May 2014, the JRP provided the provincial and federal governments with a report summarizing the Panel's rationale, conclusions and recommendations relating to the environmental assessment of the Project. On completion of the JRP stage of the environmental assessment, the CEA Agency and BCEAO consulted with Aboriginal groups on the JRP report, and finalized key documents of the environmental assessment for inclusion in a Referral Package for the Provincial Ministers of Environment and Forests, Lands and Natural Resource Operations.

Construction of the Project is also subject to regulatory permits and authorizations, and other approvals. In addition, the Crown has a duty to consult and, where appropriate, accommodate Aboriginal groups.

## **1.4 Environmental Assessment Findings**

The environmental assessment of the Project focused on 22 valued components (VCs), or aspects of the biophysical and human setting that are considered important by Aboriginal groups, the public, the scientific community, and government agencies. In the EIS, valued components were categorized under five pillars: environmental, economic, social, heritage and health. For each VC, the assessment of the potential effects of the Project components and activities during construction and operations was based on a comparison of the biophysical and human environments between the predicted future conditions with the Project, and the predicted future conditions without the Project.

Potential adverse effects on each VC are described in the EIS along with technically and economically feasible mitigation measures, their potential effectiveness, as well as specific follow-up and related commitments for implementation. If a residual effect was found on a VC, the effect was evaluated for significance. Residual effects were categorized using criteria related to direction, magnitude, geographic extent, context, level of confidence and probability, in accordance with the EIS Guidelines.

The assessment found that the effects of the Project will largely be mitigated through careful, comprehensive mitigation programs and ongoing monitoring during construction and operations. The EIS indicates that the Project is unlikely to result in a significant adverse effect for most of the valued components. However, a determination of a significant effect of the Project was found on four VCs: Fish and Fish Habitat, Wildlife Resources, Vegetation and Ecological Communities, and Current Use of Lands and Resources for Traditional Purposes.

## **1.5 Environmental Assessment Conclusion**

On October 14, 2014, the Provincial Ministers of Environment and of Forests, Lands and Natural Resource Operation decided that the Project is in the public interest and that the

benefits provided by the Project outweigh the risks of significant adverse environmental, social and heritage effects (<http://www.newsroom.gov.bc.ca/2014/10/site-c-project-granted-environmental-assessment-approval.html>). The Ministers have issued an Environmental Assessment Certificate setting conditions under which the Project can proceed.

Further, on November 25, 2014, The Minister of Environment of Canada issued a Decision Statement confirming that, while the Project has the potential to result in some significant adverse effects, the Federal Cabinet has concluded that those effects are justified in the circumstances. The Decision Statement sets out the conditions under which the Project can proceed.

Further, on November 25, 2014, The Minister of Environment of Canada issued a Decision Statement confirming that, while the Project has the potential to result in some significant adverse effects, the Federal Cabinet has concluded that those effects are justified in the circumstances. The Decision Statement sets out the conditions under which the Project can proceed.

## 1.6 Development of Mitigation, Management and Monitoring Plans

Mitigation, management and monitoring plans for the Project have been developed taking into account the measures proposed in the EIS, information received during the Joint Review Panel hearing process, and the Report of the Joint Review Panel on the Project. Those plans are consistent with, and meet requirements set out in, the conditions of the Environmental Assessment Certificate and of the Decision Statement issued on October 14, 2014 and November 25, 2014 respectively.

In addition, in accordance with environmental best practices (Condition 3.1), these plans were informed by the best available information and knowledge, based on validated methods and models, undertaken by qualified individuals and apply the best available economically and technologically feasible mitigation strategies. These plans contain provisions for review and update as new information on the effects of the Project and on the efficacy of the mitigation measures become available.

## 2.0 Heritage Resources Management Plan

### 2.1 Objective

The purpose of the Heritage Resources Management Plan is to describe the measures that will be used to mitigate the adverse effects of the Project on heritage resources. The Plan has been developed in accordance with the conditions of the Environmental Assessment Certificate (EAC) and federal Decision Statement (FDS), as indicated in the table below.

Condition	EAC Condition 62	Plan Reference
EAC Condition 62	The EAC Holder must protect and preserve heritage resources by implementing measures as detailed in a Heritage Resources Management Plan.	Heritage Resources Management Plan
	The Heritage Resources Management Plan must be developed by a QEP.	Section 10.0 Qualified Professionals

Condition	EAC Condition 62	Plan Reference
	<p>The Heritage Resources Management Plan must specify a process for the engagement of Aboriginal Groups in planning and follow-up/monitoring activities related to heritage resources as the Project proceeds. In particular, the Plan must incorporate a process for continued collaboration with Aboriginal Groups on ground-truthing for the identification of any burial sites that the Project may disturb.</p>	<p>Section 4.0 Engagement with Aboriginal Groups</p>
	<p>The Heritage Resources Management Plan must include Archaeological Impact Management and Heritage Resources Monitoring and Follow-Up Programs. The field and reporting portions of each program will be of a scope, duration and frequency prescribed by the BC Heritage Conservation Act permits. The Archaeology Impact Management Program must be developed by a QEP qualified to hold Section 14 Heritage Inspection and Investigation Permits.</p>	<p>Section 6.0 Heritage Resources Impact Management</p> <p>Section 8.0 Heritage Monitoring and Follow-Up Program</p> <p>Section 10.0 Qualified Professionals</p>
	<p>The Heritage Resources Monitoring and Follow-Up Program must include at least the following:</p>	
	<ul style="list-style-type: none"> <li>• Monitor reservoir erosion during occurrences of exposure to assess the impacts on existing or newly identified protected archaeological sites and other heritage resources</li> </ul>	<p>Section 8.0 Heritage Monitoring and Follow-Up Program</p>
	<ul style="list-style-type: none"> <li>• Implement mitigation measures, systematic data recovery or emergency salvage operations in accordance with the Heritage Resources Management Plan.</li> </ul>	<p>Section 6.0 Heritage Resources Impact Management</p>
	<ul style="list-style-type: none"> <li>• Conduct the monitoring of shoreline erosion downstream (for approximately 2 km) as part of chance-find procedures to determine if physical heritage resources are affected by the Project. The EAC Holder must undertake this monitoring for any spills from the Project reservoir for a period of two years following the commencement of reservoir filling and commissioning.</li> </ul>	<p>Section 8.0 Heritage Monitoring and Follow-Up Program</p>
	<ul style="list-style-type: none"> <li>• Establish a reporting structure for reporting to Aboriginal Groups and the Archaeology Branch beginning 180 days following the commencement of operations.</li> </ul>	<p>Section 9.0 Reporting</p>

Condition	EAC Condition 62	Plan Reference
	<ul style="list-style-type: none"> <li>The EAC Holder must file the final Heritage Resources Management Plan with EAO, Archaeology Branch and Aboriginal Groups a minimum of 30 days prior to commencement of construction.</li> </ul>	Section 2.3 Consultation
	<ul style="list-style-type: none"> <li>The EAC Holder must develop, implement and adhere to the final Heritage Resources Management Plan, and any amendments, to the satisfaction of EAO.</li> </ul>	Section 2.3 Consultation
EAC Condition 64	The EAC Holder must provide a total of \$100,000 to local accredited facilities in close proximity to the Project, prior to the start of operations, to curate and display the recovered resources and the funding is not to be used for buildings to house them. These funds must be provided only to facilities that agree to work with interested Aboriginal Groups on the display and curation of those artefacts.	Section 7.0 Compensation-in-Kind
FDS Condition 15.1	The Proponent shall ensure that the Designated Project is constructed and operated in a manner that avoids, minimizes or manages impacts to local archaeological and heritage resources.	Section 6.0 Heritage Resources Impact Management
FDS Condition 15.2	The Proponent shall develop, in consultation with Reservoir Area Aboriginal groups and the Métis Nation British Columbia, a plan to avoid, minimize or manage impacts to local archaeological and heritage resources.	Section 2.3 Consultation Section 4.0 Engagement with Aboriginal Groups
FDS Condition 15.3	The plan shall include:	
FDS Condition 15.3.1	<ul style="list-style-type: none"> <li>procedures to continue inventories and ground truthing of potential physical and cultural heritage resources to determine the need and applicability of mitigation measures;</li> </ul>	Section 4.0 Engagement with Aboriginal Groups  Section 5.2 Additional Baseline Inventory
FDS Condition 15.3.2	<ul style="list-style-type: none"> <li>measures to address the effects of the Designated Project on the physical and cultural heritage and to structures, sites or things that that have been identified as being of historical, archaeological, paleontological or architectural significance by local stakeholders, relevant organizations, Reservoir Area Aboriginal groups and the Métis Nation British Columbia;</li> </ul>	Section 6.0 Heritage Resources Impact Management

Condition	EAC Condition 62	Plan Reference
FDS Condition 15.3.3	<ul style="list-style-type: none"> <li>procedures to monitor reservoir erosion during occurrences of low reservoir levels, to investigate any potentially new-found sites and to carry out emergency salvage procedures during construction and operation; and</li> </ul>	Section 8.0 Heritage Monitoring and Follow-Up Program
FDS Condition 15.3.4	<ul style="list-style-type: none"> <li>procedures to monitor shoreline erosion downstream of the Site C dam for up to 2.5 kilometres during the first two years of operation to determine if physical heritage resources are affected.</li> </ul>	Section 8.0 Heritage Monitoring and Follow-Up Program
FDS Condition 15.4	The Proponent shall submit to the Agency, Reservoir Area Aboriginal groups and the Métis Nation British Columbia a draft copy of the plan for review 90 days prior to initiating construction.	Section 2.3 Consultation
FDS Condition 15.5	The Proponent shall submit to the Agency the final plan a minimum of 30 days prior to initiating construction. When submitting the final plan, the Proponent shall provide to the Agency, an analysis that demonstrates how it has appropriately considered the input, views or information received from Reservoir Area Aboriginal groups and the Métis Nation British Columbia.	Section 2.3 Consultation
FDS Condition 15.6	The Proponent shall implement the plan and provide to the Agency an analysis and summary of the implementation of the plan, as well as any amendments made to the plan in response to the results, on an annual basis during construction and for the first five years of operation, unless otherwise indicated.	Section 9.0 Reporting

The Heritage Resources Management Plan has also been developed in accordance with Section 4.9 of the CEMP (Heritage Resources Management), as described below.

## 2.2 Scope

BC Hydro will be responsible for retaining a Heritage Specialist who will be responsible for coordinating BC Hydro's heritage obligations with the Contractors working on the Project (see Section 4.9 of the Construction Environmental Management Plan), developing and maintaining the Project-wide HRMP (this document), and applying for and holding the heritage permits necessary to undertake planned construction activities within the proposed schedule.

The scope of the HRMP includes the management of heritage resources, categorised as follows:

- Palaeontological sites
- Archaeological sites
- Historic sites

Palaeontological sites are locations where ancient organisms, or traces of their existence, have been preserved in the geological record as fossils (Fossil Management Review Technical Working Group 2004). Fossils usually comprise the remnants of more resilient structural elements such as bones, teeth, shells, and woody parts, but can also be expressed as imprints of soft body parts, tracks, and traces of an organism's interaction with the environment. In northeastern British Columbia, a wide variety of fossils occur in bedrock associated with Palaeozoic, Mesozoic, and Cenozoic times, and in unconsolidated Quaternary sediments. Known fossils from the region consist of mammals, birds, dinosaurs, reptiles, fish, shellfish, sea jellies (jellyfish), insects, worms, trees, ferns, flowering plants, mosses, algae, and microorganisms, along with traces of their locomotion, feeding, and lodging.

Archaeological sites are locations that contain physical evidence of past human activities for which scientific methods of inquiry (i.e., survey, excavation, data analysis) provide the main sources of information. Archaeological sites can be associated with pre-contact (commonly referred to as prehistoric) and post-contact periods, that is, the time before or after the arrivals of Europeans. The most common prehistoric site type is a scatter of stone artifacts found on the surface or buried. Rocky Mountain Fort, an early European site for which little surficial evidence exists, is an example of a post-contact archaeological site.

Historical sites are any structure, site, or thing that is of historical or architectural significance as defined by the *British Columbia Archaeological Impact Assessment Guidelines* (BC Archaeology Branch 1998) and heritage values as identified in interviews with local and regional historical societies, museums, and other organizations as well as local residents. Historical sites and locations in British Columbia are primarily attributable to post-contact Euro-Canadian settlement and land use, but also include habitations and other evidence left by Aboriginal peoples in that time period.

## **2.3 Consultation**

Many of the conditions require BC Hydro to consult or collaborate with certain government agencies and Aboriginal groups in respect of measures and plans required by the conditions.

BC Hydro began consultation on the Project in late 2007, before any decision to advance the Project to an environmental assessment. BC Hydro's consultation with the public, stakeholders, regional and local governments, regulatory agencies, and Aboriginal groups is described in EIS Section 9, Information Distribution and Consultation.

Additional information on the consultation process and a summary of issues and concerns raised during consultation are provided in:

- Volume 1 Appendix G, Public Information Distribution and Consulting Supporting Documentation

- Volume 1 Appendix H, Aboriginal Information Distribution and Consultation Supporting Documentation
- Volume 1 Appendix I, Government Agency Information Distribution and Consultation Supporting Documentation
- Volume 5, Appendix A01 to A29, Parts 2 and 2A, Aboriginal Consultation Summaries
- Technical Memo: Aboriginal Consultation

Draft versions of a number of the mitigation, management and monitoring plans required by the conditions were submitted to applicable government agencies and Aboriginal groups for comment on October 17, 2014.

Comments on these draft plans were received from various government agencies and Aboriginal groups during November and December 2014, and were considered in the revisions to these plans. BC Hydro's consideration of these comments is provided in the consideration tracking tables that accompany each plan.

On December 15, 2014, Treaty 8 Tribal Association (T8TA), on behalf of West Moberly, Sauteau and Prophet River First Nations, submitted to BC Hydro a letter in response to BC Hydro's request for comment on the Plans sent on October 17, 2014. The letter included several appendices, including the Joint Review Panel (JRP) Report and transcripts from the JRP hearings in December 2013 and January 2014. BC Hydro responded to the three First Nations on January 21, 2015 noting that the October 17 2014 request for comments on the plans was to provide an opportunity to the First Nations to submit to BC Hydro any information they wanted to provide in relation to the Plans. BC Hydro advised that it was aware of the information referred to in T8TA's letter when the plans were prepared, and advised that it was preparing a table setting out where any mitigation measures identified by representatives of the three First Nations during the hearings are considered in the draft plans and would provide that to the First Nations once complete. Accordingly BC Hydro's responses to those mitigation measures identified by the representatives of the three First Nations during the JRP hearings were provided to the EAO in a separate table by letter dated May 19, 2015. Aside from the December 15, 2014 letter, BC Hydro has not received further comments from these First Nations. A letter of understanding dated April 30, 2015 respecting provision of capacity funding to support review of the plans was entered into by BC Hydro and Sauteau First Nations (on behalf of Sauteau, West Moberly and Prophet River First Nations).

New draft plans (i.e., Housing Plan and Housing Monitoring and Follow-Up Program, and the quarry/pit development plans) were provided to the entities identified in the EAC conditions on April 7, 2015. The Vegetation and Wildlife Mitigation and Monitoring Plan was revised based on comments received on the October 17, 2014 version and based on discussions with Environment Canada and the BC Ministry of Environment, and was re-submitted to applicable entities on April 7, 2015.

Comments on the revised plans were requested by May 11, 2015 to allow for review, consideration of comments and finalization of the plans 30 days prior to the commencement of construction.

Comments were received by this requested date from:

- Fort Nelson First Nation
- Ministry of Forests, Lands and Natural Resource Operations (FLNRO), and
- Métis Nation British Columbia.

The Peace River Regional District submitted their comments on the plan on May 14, 2015. FLNRO submitted additional comments on May 15, 2015, including comments from the BC Ministry of Environment.

BC Hydro considered the comments provided and prepared final plans. On May 19, 2015, BC Hydro submitted the following mitigation, management and monitoring plans to the BC Environmental Assessment Office (BC EAO) for review:

- Construction Environmental Management Plan
- Construction Safety Management Plan
- Fisheries and Aquatic Habitat Management Plan
- Vegetation and Wildlife Mitigation and Monitoring Plan
- Vegetation Clearing and Debris Management Plan
- Aboriginal Plant Use Mitigation Plan
- Aboriginal Training and Inclusion Plan
- Business Participation Plan
- Emergency Services Plan
- Healthcare Services Plan
- Labour and Training Plan
- Cultural Resources Mitigation Plan
- Heritage Resources Management Plan
- Housing Plan and Housing Monitoring and Follow-Up Program
- Wuthrich Quarry Development Plan
- West Pine Quarry Development Plan; and
- Del Rio Pit Development Plan.

The CEA Agency and Environment Canada submitted comments on the revised plan on May 22, 2015. These comments were considered and the final plans were revised accordingly and submitted on June 5, 2015 to the entities identified in the EAC conditions.

### **3.0 Regulatory Context**

The following are relevant to heritage resource management:

- Provincial and Federal Project conditions stemming from their decisions under the *Canadian Environmental Assessment Act* (CEAA) 2012, and the *British Columbia Environmental Assessment Act*
- *British Columbia Heritage Conservation Act*
- *British Columbia Fossil Management Framework*
- *British Columbia Cremation, Interment and Funeral Services Act* and *British Columbia Coroners Act*
- Heritage Conservation Memorandum of Understanding between British Columbia and three Treaty 8 First Nations

### **3.1 Provincial and Federal Environmental Assessment**

The Province of British Columbia and the Government of Canada issued, respectively, an Environmental Assessment Certificate and a Decision Statement for the Project on October 14, 2014.

### **3.2 British Columbia Heritage Conservation Act**

Heritage sites on non-federal lands in British Columbia are administered by the BC Archaeology Branch and the BC Heritage Branch, in accordance with the *BC Heritage Conservation Act* (HCA). The BC Archaeology Branch is the agency responsible for administering the HCA and for maintaining the Provincial Heritage Register. The BC Heritage Branch exercises regulatory authority under the HCA regarding the protection and alteration of designated (i.e., protected) historical heritage sites. Section 13 of the HCA specifies that an individual (or corporation) must not “damage, excavate, dig in or alter, or remove any heritage object” from a heritage site, except in accordance with a permit issued by the Minister pursuant to Sections 12 and 14. The HCA confers automatic protection upon heritage sites that pre-date 1846, or undated sites that could pre-date 1846, regardless of whether they are recorded in the Provincial Heritage Register, whether they are located on Crown Land or private property, and whether they are in a disturbed or intact context. Section 9 (2)(c) of the HCA allows protection of historical heritage sites under the *BC Local Government Act* or the Vancouver Charter. Post-1846 historical heritage sites can be protected by Ministerial Order, Designation by an Order-in-Council, or a municipal by-law, but most historical sites are not protected in British Columbia.

The requirements and procedures for heritage resource studies undertaken for development projects are described in the *British Columbia Archaeological Impact Assessment Guidelines* (BC Archaeology Branch 1998), and procedures for respectful handling of found human remains that are protected under the HCA are provided in the *Policy on Found Human Remains* (BC Archaeology Branch 1999).

### 3.3 British Columbia Fossil Management Framework

The Province of British Columbia recognizes that palaeontological resources have heritage, scientific, and educational value as “fossils represent the historical record of the evolution and development of life on Earth.” As such, the Province recognizes the need to protect important fossil finds and the interests of stakeholders. Currently, fossil collecting in British Columbia is unregulated and there is no clear policy for fossil management (Fossil Management Review Technical Working Group 2004). There are no explicit administrative controls or legal instruments that provide automatic protection and management of such resources, although protection can be provided under certain conditions, as explained below.

Regulatory protection for palaeontological sites was limited until 1997, when they were included under the BC *Mineral Tenure Act*. In 2005, a new regulation took effect that identifies fossils as “not a mineral” under the BC *Mineral Tenure Act*, effectively preventing the rights to mine, extract, and sell fossils being obtained through new mineral claims.

Although palaeontological sites are not currently protected by explicit provincial legislation, the Lieutenant Governor in Council has the ability to protect specific palaeontological finds through designation as a provincial heritage site or heritage object by issuing an Order-in-Council under Section 9 of the BC *Heritage Conservation Act*. In addition, the BC Land Tenures Branch (formerly the BC Strategic Land Policy and Legislation Branch) has established a set of guidelines for fossil management and is currently working with a Fossil Management Review Technical Working Group to establish operational and administrative processes for fossil management in British Columbia. The BC Land Tenures Branch (2012) guidelines state:

- Fossils and fossil sites are important to British Columbia as heritage resources.
- The order of priority for fossil management is science, natural heritage, education and, where appropriate, commercial use.
- The order of priority for extraction or excavation of fossils is science, natural heritage, education and, where appropriate, commercial use. Non-extractive commercial use has precedent over extractive commercial use.
- A fossil management framework that recognizes the heritage value of fossils, the need to protect significant fossil sites, and the interests of stakeholders is necessary.

In the absence of clear legislative protection and resource management guidelines, ethical guidelines found in Ludvigsen and Beard’s (1994) *West Coast Fossils: A Guide to the Ancient Life of Vancouver Island* and the British Columbia Palaeontological Alliance’s (2012) Policy on Fossil Collecting and Regulation have been adopted for fossil collection activities undertaken for purposes of the Project.

### **3.4 British Columbia Cremation, Interment and Funeral Services Act and British Columbia Coroners Act**

In the event that interred human remains are encountered in a context that is not addressed by the BC *Heritage Conservation Act*, the BC *Cremation, Interment and Funeral Services Act* (CIFSA) or the BC *Coroners Act* may apply. An example of such a context might be a historical grave site that is not archaeological, but which is not located in a registered cemetery.

Section 19(2) of the CIFSA outlines the specific circumstances under which human remains can be moved, specifically:

A person must not disinter or remove human remains, or any part of human remains, from the place they are interred unless the disinterment or removal is in accordance with

- (a) this Act, the *Coroners Act* and the regulations under those Acts, or
- (b) a permit or an order under the *Heritage Conservation Act*.

### **3.5 Heritage Conservation Memorandum of Understanding between British Columbia and three Treaty 8 First Nations**

There is a Memorandum of Understanding (MOU) signed by three Treaty 8 First Nations and the Province of British Columbia for heritage conservation (BC Ministry of Tourism, Culture, and the Arts 2010). The MOU was signed on May 20, 2010, between the Province and the Doig River First Nation, Prophet River First Nation, and West Moberly First Nations.

The MOU identifies a number of measures the parties to the MOU will take with respect to heritage resources. The key aspects of this MOU as they relate to this HRMP are those sections related to HCA Permit Applications, and to associated HCA Permit Reports.

## **4.0 Engagement with Aboriginal Groups**

This section has been developed in accordance with Environmental Assessment Certificate Condition 62 and Condition 15.2 of the Decision Statement:

*Specific section within CEA Condition 62: The Heritage Resources Management Plan must specify a process for the engagement of Aboriginal Groups in planning and follow-up/monitoring activities related to heritage resources as the Project proceeds. In particular, the Plan must incorporate a process for continued collaboration with Aboriginal Groups on ground-truthing for the identification of any burial sites that the Project may disturb.*

*15.2: The Proponent shall develop, in consultation with Reservoir Area Aboriginal groups and the Métis Nation British Columbia, a plan to avoid, minimize or manage impacts to local archaeological and heritage resources.*

*15.3.1: The plan shall include: procedures to continue inventories and ground truthing of*

*potential physical and cultural heritage resources to determine the need and applicability of mitigation measures*

There are a number of ways that BC Hydro will engage Aboriginal groups with respect to the implementation of this Plan:

- In accordance with the HCA, for Aboriginal groups that may be affected by a permitting decision between 15 and 30 days will be provided to provide an opportunity to have their comments considered. As described above in Section 3.5, interim reports will be provided to the First Nations who are party to that MOU, and in accordance with HCA permits all Aboriginal groups specified in permits receive copies of permit reports.
- BC Hydro will invite Aboriginal groups to complete ground-truthing exercises, whereby Aboriginal land users, including registered trap-line holders, may identify any locations of cultural importance within planned construction areas within the PAZ. These ground-truthing exercises may identify areas for additional heritage work.
- BC Hydro and its consultants will continue to make appropriate personnel available to discuss the heritage program.
- To date the heritage field program has had a high rate of employment of Aboriginal field assistants from the Peace region, and future field programs will continue to provide field assistant employment opportunities to Aboriginal people.
- Any additional terms for engagement related to heritage resources that may exist, or may be reached in the future, in agreements between the province and Aboriginal groups (as described above), or in agreements between BC Hydro and Aboriginal groups will also be taken into account.

## **5.0 Heritage Baseline Inventory**

### **5.1 Known Heritage Sites**

The Provincial Heritage Register includes detailed information on known HCA-protected heritage resources in the Project Activity Zone (PAZ). Within the PAZ many of the known sites were found during inventories conducted during the environmental assessment (EA) for the Project. Information collected to date is included in the Heritage Resources Section 32, Volume 4 of the Site C Clean Energy Project, Environmental Impact Statement and Volume 4 Technical Appendix: Heritage Resource Assessment Report, Volume 1-4 Appendix C (BC Hydro, 2012).

The Heritage Specialist will maintain a current database of BC HCA protected, and non-protected heritage sites including historic sites and palaeontological sensitivity areas and finds within the PAZ. The Heritage Specialist is able to provide Contractors with detailed information on palaeontological, archaeological, and historical resources in the PAZ on an as-needed basis.

## 5.2 Additional Baseline Inventory

This section has been developed in accordance with Condition 15.3.1 of the Decision Statement.

*The plan shall include: procedures to continue inventories and ground truthing of potential physical and cultural heritage resources to determine the need and applicability of mitigation measures.*

While the vast majority of areas requiring a heritage inventory within the PAZ were inspected prior to Project construction, there are some private land parcels for which permission to enter was not granted, and therefore may require an assessment prior to construction activities. In addition, BC Hydro is working with Aboriginal groups to complete ground-truthing exercises, whereby Aboriginal land users, including registered trap-line holders, are engaged to identify culturally important locations in the PAZ. These ground-truthing exercises may identify areas for additional heritage inventory work.

All additional inventory field work will be completed in a manner consistent with the heritage assessment, prior to the start of construction in these areas. Interim reports will be submitted to the BC Archaeology Branch and Aboriginal groups in accordance with HCA permit requirements and requirements described in section 2.6. The Provincial Heritage Register and the Heritage Specialist's database of known heritage sites will be updated as new heritage sites are found. Mitigation measures will be developed for any newly found sites in a manner consistent with the approaches outlined in this Heritage Resource Management Plan.

## 5.3 Palaeontology

The significance of palaeontological resources was based on a checklist of scientific, heritage, educational, and commercial criteria (weighted toward scientific). Palaeontological sensitivity areas (PSAs) identified in the PAZ are subdivided into three classes, based on their relative significance:

- **Class I** represents PSAs exhibiting positive results for the presence of palaeontological specimens having the highest significance ranking. They may contain fossils with the following characteristics: *in situ*; unique; abundant and diverse specimens; good preservation; spanning a broad stratigraphic interval; with potential for educational or commercial opportunities.
- **Class II** represents PSAs that may contain commonly known fossils, *in situ*, moderate preservation, and moderate abundance and may sometimes coincide with areas where amateur fossil collection has taken place.
- **Class III** represents PSAs having the lowest significance ranking. These sites have characteristically low specimen abundance, poor preservation, and widely common specimens in *ex situ* context.

## 5.4 Archaeology

BC *Heritage Conservation Act*-protected heritage resources have been assigned to classes according to an assessment of their heritage significance, as determined using criteria set forth in the *British Columbia Archaeological Impact Assessment Guidelines*, Appendix D (BC Archaeology Branch 1998) and through discussion with the BC Archaeology Branch, as follows:

- **Class I:** This class represents the most complex archaeological sites, rated as having high to moderate significance with high artifact counts (>20) and four or more formed tools (cores or retouched artifacts) and utilized flakes. These sites also include one or more of the following: a variety of artifact types, “exotic” raw materials, stratified cultural deposits denoting multiple occupations, or faunal remains.
- **Class II:** These sites have lower significance ratings than Class I sites for a variety of reasons. The BC Archaeology Branch has recommended subdivision of the Class II sites, with the goal of identifying those sites that may have less significance and correspondingly would receive a lower level of effort in terms of management activities. Class II sites are subdivided into four subclasses as follows:
  - ◆ **Class IIa** represents moderate to low significance archaeological sites, with 21 or more artifacts, three or fewer formed tools and utilized flakes, and one or more of the following attributes: exotic lithic raw materials, faunal remains, or evidence of multiple occupations.
  - ◆ **Class IIb** represents low-to-moderate significance archaeological sites, composed of 20 or fewer artifacts with two or fewer formed or utilized tools, and the presence of exotic lithic raw materials, or faunal remains.
  - ◆ **Class IIc** represents low significance archaeological sites, with two to 20 flakes. These sites do not contain any evidence of formed tools, utilized flakes, exotic lithic raw materials, or faunal remains.
  - ◆ **Class IId** represents low significance archaeological sites that have either been destroyed (that is, a “legacy site”) or are composed of a single flake (isolated find). By definition, these sites do not contain any evidence for formed tools or utilized flakes, exotic raw materials, multiple occupations, or faunal remains.
  - ◆ **Class NA:** A number of previously recorded archaeological sites are located in areas where permission to enter was not granted, or have original descriptions that are poor and could not be relocated. These sites have been included in archaeological overview level assessments, but insufficient information is currently available to assign these locations to classes.

## 5.5 Historical

Both BC *Heritage Conservation Act*-protected historical sites and historical sites not automatically protected by the HCA have been assigned to classes according to an assessment

of their heritage significance, as determined using criteria set forth in the *British Columbia Archaeological Impact Assessment Guidelines*, Appendix E (BC Archaeology Branch 1998). These classes are defined as follows:

- **Class I** represents significant sites, with good integrity and condition.
- **Class II** represents sites with heritage significance, but poor integrity and condition.
- **Class III** represents sites with low heritage significance and poor integrity and condition.
- **Class NA:** A number of historical sites are located on properties where permission to enter has not been granted, or have original descriptions that are poor and could not be relocated. Therefore these sites could not be classified based on existing information.

## 6.0 Heritage Resources Impact Management

This section has been developed in accordance with Environmental Assessment Certificate Condition 62 and conditions 15.1, 15.3.2 of the Decision Statement:

*Specific section within Condition 62: The Heritage Resources Management Plan must include Archaeological Impact Management and Heritage Resources Monitoring and Follow-Up Programs. The field and reporting portions of each program will be of a scope, duration and frequency prescribed by the BC Heritage Conservation Act permits. The Archaeology Impact Management Program must be developed by a QEP qualified to hold Section 14 Heritage Inspection and Investigation Permits*

*15.1: The Proponent shall ensure that the Designated Project is constructed and operated in a manner that avoids, minimizes or manages impacts to local archaeological and heritage resources.*

*15.3.2. The Plan shall include; measures to address the effects of the Designated Project on the physical and cultural heritage and to structures, sites or things that have been identified as being of historical, archaeological, paleontological or architectural significance by local stakeholders, relevant organizations, Reservoir Area Aboriginal groups and the Métis Nation British Columbia;*

### 6.1 Work Planning

Contractors will be responsible to include heritage requirements as part of an EPP as applicable to the scope of work covered by the EPP. Contractors will be required to develop the heritage requirements of an EPP, and to provide the Heritage Specialist with information in a timely manner about the scheduling of planned work. The Heritage Specialist will provide advice to the Contractor in developing the EPP by providing the following as applicable:

- Maps and digital data identifying:
- areas within planned construction locations where heritage assessments are not completed and still required;

- recorded heritage sites;
- required heritage mitigation and protection measures.
- Review of maps of contractors planned construction locations and activities prior to construction commencing to identify heritage management requirements.
- Completion of required heritage assessments in accordance with applicable legislation and conditions of permits issued under the *BC Heritage Conservation Act*, where heritage assessments have not been completed in any construction locations.
- Confirmation of the status and timing of planned mitigation for known heritage resources in accordance with permit conditions issued under the *BC Heritage Conservation Act*.
- Confirmation of the status of *Heritage Conservation Act* permits prior to disturbance of known heritage resources.
- Implementation of required heritage surface inspections or monitoring after initial ground disturbance associated with stripping, grubbing or excavating within known archaeological sites, in accordance with the conditions of permits issued under the *BC Heritage Conservation Act*.
- Qualified Environmental Professionals as required if the contractor discovers a chance find of any previously unrecorded heritage resources and any human remains found during construction activities in accordance with the HRMP, applicable legislation and conditions of permits issued under the *BC Heritage Conservation Act*

## 6.2 Heritage Conservation Act Permits

The sections that follow summarize heritage resource permitting for the Project. Palaeontological resources and non-HCA protected historical resources are not subject to permit requirements except in rare circumstances as outlined in Section 2 and below. The remainder of this summary focuses on permitting associated with archaeological resources and HCA-protected historical resources.

Archaeological work for the Heritage Resource Impact Assessment was conducted in accordance with the terms and conditions of HCA Section 14 (Heritage Inspection) permits 2010-0378 and 2014-0274. The HRMP also incorporates information gathered during concurrent archaeological field work undertaken by Golder Associates Ltd. (Golder) under HCA (Heritage Inspection) permit 2009-0262 on an as-and-when basis in support of engineering, geotechnical and environmental investigations associated with the Project, as well as information gathered from field programs in earlier periods.

Through its Heritage Specialist BC Hydro will obtain permits under the *BC Heritage Conservation Act* that are required for the construction of the Project, which are anticipated to include requirements with respect to the assessment, mitigation and management of heritage resources and any requirements associated with undertaking construction activities within protected heritage sites.

To allow for archaeological inventory work, assessments and impact mitigation (systematic data recovery), and to undertake appropriate actions in response to a chance find during construction, an amendment to HCA S.14 (Heritage Inspection) permit 2014-0203 has been sought. Prior to the commencement of site preparation activities, the Heritage Specialist will submit a S. 12 HCA Permit application to allow for site alteration, and will update the permit as required during Project construction and operations. These permits will be amended as needed to address any new heritage requirements during construction. See below for further information.

### **6.2.1 Inventory, Assessment and Impact Mitigation**

Archaeological inventory work and assessments will be undertaken under an HCA S.14 Heritage Inspection Permit. An HCA S.14 Heritage Inspection Permit will be maintained for the Project Activity Zone during Project construction.

As a primary mitigation measure, systematic data recovery (SDR) under an HCA S.14 permit will be undertaken for all Class I archaeological sites and for a sample of Class II sites (based on the classification of sites recorded during the inventory) (see Section 4.3 and Appendices A and B).

S. 14 Heritage permits may be for single sites or for multiple sites.

### **6.2.2 Site Alteration**

Prior to the commencement of site preparation activities, the Heritage Specialist will submit a S. 12 HCA Permit application to allow for site alteration, and will update the permit as required during Project construction and operations. These permits will be amended as needed to address any new heritage requirements during construction.

An HCA S.12 Alteration Permit must be in place prior to undertaking land-altering work within an identified archaeological site. Approval to proceed with site alteration within each site with planned SDR or other mitigation work is contingent on Archaeology Branch approval of the submitted interim report that summarises the results of the planned mitigation work for each site (see Section 6.2.1). Alteration permits may include general or site-specific conditions for the management of sites covered by the Alteration Permit.

Within archaeological sites for which mitigation (SDR) is planned, winter clearing prior to completion of the SDR would be allowable, pending issuance of the HCA S. 12 Alteration Permit. As winter clearing occurs on frozen ground with little or no effect on the site deposits below the surface, SDR can occur after clearing activities. Further ground altering effects from project construction activities will be allowed only after SDR is complete, and after Archaeology Branch approval of interim reports that summarise the results of SDR at each site.

## 6.3 Mitigation Measures

### 6.3.1 Avoidance

The preferred means of limiting effects to heritage sites is partial or complete avoidance by changing the design or placement of project components. The Project components that may offer some opportunity for some level of avoidance of heritage sites include:

- the placement of towers or temporary work areas along the transmission line,
- the final alignment or placement of temporary work areas within Highway 29 realignments,
- the final alignment of temporary or permanent access roads, and;
- quarries and construction material areas outside the dam site area.

The Contractor, by working through the Work Planning steps described in Section 4.1, will work with the Heritage Specialist to identify any measures that will be taken to avoid heritage sites, and will record any avoidance measures in EPPs. Where sites are to be avoided, the EPP would describe the site protection measures (e.g. fencing or barriers) that would be employed so that the site is not affected by construction activities.

For heritage sites that cannot be avoided, the following sections describe the primary mitigation measures that will be used. Appendix B describes the various types of mitigation in greater detail.

### 6.3.2 Palaeontological Sensitive Areas

Analogous to the concept of “site” in archaeological or historical studies, palaeontological sensitivity areas (PSAs) are the basic recording unit for fossil management. Given the nature of geological formations, PSAs are not rigidly defined as “sites”, rather as the name suggests they delineate an area with palaeontological sensitivity (or potential). Palaeontological mitigation measures concentrate on fourteen palaeontological site complexes, thirteen of which are composed of concentrations of fossil sites in geographically constrained bedrock exposures that span geologically distinctive stratigraphic intervals. One palaeontological site complex includes widely distributed fossil sites dating from the Quaternary.

The primary mitigation measures for palaeontological resources are:

- Systematic data recovery (documentation and representative sample collection) from within new geological exposures within the 14 identified PSAs; and
- Chance find procedures during construction.

### 6.3.3 Archaeological and Historic Sites

Consistent with the *British Columbia Archaeological Impact Assessment Guidelines* (BC Archaeology Branch 1998), management of archaeological and historical sites are addressed at the site level. In addition, research questions to be addressed through systematic data recovery at select archaeological sites acknowledge the presence of four archaeological site complexes:

localities with high densities of all sizes of archaeological sites associated with a particular landform (e.g., Cache Creek – Bear Flat) or environmental feature (e.g., Watson Slough) in the PAZ.

The primary mitigation measure for heritage resources is to undertake systematic data recovery within heritage sites prior to disturbance by Project activities, as follows:

- Systematic data recovery for all Class I archaeological sites and HCA-protected historical sites that will be affected by construction activities prior to ground altering activities in those locations;
- Systematic data recovery for a sample of Class II subclasses IIa, IIb, and IIc. These sites were divided into four strata according to side of the river, and valley versus plateau (i.e., North Valley, South Valley, North Plateau, and South Plateau), and using a table of random numbers, a random sample of sites were selected for systematic data recovery. The sample size was approximately 40% of Class IIa sites, 20% of Class IIb sites, and 15% of Class IIc sites.
- Class IId archaeological sites do not require further work given their low significance (either previously destroyed or consisting of a single stone flake).

#### 6.3.4 Confirmed Burial Sites

The preferred approach for confirmed human burial locations is to avoid them. However, where a confirmed human burial location cannot be avoided by construction activities it may require *in situ* protection (e.g., capping) or relocation, in accordance with regulatory requirements. Determination of the preferred approach will be made with input from descendants of the deceased individuals, if they can be identified and contacted.

#### 6.3.5 Summary of Mitigation Measures by Activity

The Project’s major construction activities and the primary approaches to mitigate project effects on palaeontological (P), archaeological (A), and historical (H) resources are summarized in Table 1. Table 2 in the following section summarises the primary monitoring approaches during Project operations. The approaches listed in Tables 1 and 2 and further described in Appendix B are those planned to be implemented in the PAZ based on the nature of the heritage resources that are present and the nature of project activities.

Prescriptive Heritage Environmental Protection Plans will be developed that will include heritage-site specific management based on the HRMP and HCA permits.

**Table 1: Project Construction Activities and Primary Heritage Mitigation Approach**

Activity	Primary Mitigation Approaches
Site Preparation: Dam site clearing and grubbing	<ul style="list-style-type: none"> <li>■ Systematic data recovery (P, A)</li> <li>■ Documentation (P)</li> </ul>

Activity	Primary Mitigation Approaches
	<ul style="list-style-type: none"> <li>■ Winter clearing if cleared in advance of planned SDR (P, A)</li> <li>■ Post-grubbing site inspection or concurrent monitoring (P, A)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Site Preparation: Dam site area (early excavations, soil stripping, roads, camp, bridge crossing)	<ul style="list-style-type: none"> <li>■ Record the start and end location of artifact-bearing soils (A, H)</li> <li>■ Documentation (P)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Dam site construction (foundation, roads, spillway, powerhouse, turbines, generators, ancillary infrastructure)	<ul style="list-style-type: none"> <li>■ Record the start and end location of artifact-bearing soils (A, H)</li> <li>■ Documentation (P)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Quarries and construction material source areas	<ul style="list-style-type: none"> <li>■ Systematic data recovery (P, A, H)</li> <li>■ Post-grubbing site inspection or concurrent monitoring (P, A, H)</li> <li>■ Documentation (P, H)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Relocated surplus excavation materials (RSEM) and Hudson's Hope Shoreline Protection	<ul style="list-style-type: none"> <li>■ Record the start and end location of artifact-bearing soils (A, H)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Reservoir clearing	<ul style="list-style-type: none"> <li>■ Systematic data recovery (P, A, H)</li> <li>■ Winter clearing if cleared in advance of planned SDR (P, A, H)</li> <li>■ Documentation (P, H)</li> <li>■ Compensation-in-kind (H)</li> <li>■ Grave sites (capping and relocation) (A, H)</li> <li>■ Post-clearing site inspection or concurrent monitoring (P, A, H)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Transmission line and substations	<ul style="list-style-type: none"> <li>■ Site avoidance where the project design can feasibly be</li> </ul>

Activity	Primary Mitigation Approaches
(including site preparation, clearing and grubbing, construction)	<p>changed (e.g., tower placement) (A, H)</p> <ul style="list-style-type: none"> <li>■ Systematic data recovery (P, A, H)</li> <li>■ Documentation (P)</li> <li>■ Winter clearing if cleared in advance of planned SDR (P, A, H)</li> <li>■ Post-grubbing site inspection or concurrent monitoring (P, A, H)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>
Highway 29 realignment and access roads (including site preparation, clearing and grubbing, construction)	<ul style="list-style-type: none"> <li>■ Site avoidance where the project design can feasibly be changed (e.g., road alignment) (A, H)</li> <li>■ Documentation (P, H)</li> <li>■ Compensation-in-kind (H)</li> <li>■ Systematic data recovery (P, A, H)</li> <li>■ Winter clearing if cleared in advance of planned SDR (P, A, H)</li> <li>■ Post-grubbing site inspection or concurrent monitoring (P, A, H)</li> <li>■ Chance find procedure (P, A, H)</li> </ul>

## 7.0 Compensation-In-Kind

This section has been developed in accordance with Environmental Assessment Certificate Condition 64 which states:

*The EAC Holder must provide a total of \$100,000 to local accredited facilities in close proximity to the Project, prior to the start of operations, to curate and display the recovered resources and the funding is not to be used for buildings to house them. These funds must be provided only to facilities that agree to work with interested Aboriginal Groups on the display and curation of those artefacts.*

In accordance with the Project construction schedule, most of the systematic data recovery efforts will be completed within the first five years of the Project construction schedule. Recovered archaeological remains, in accordance with HCA permits, will be documented according to provincial standards, and will be sent to the North Peace Regional Museum for curation. Recovered palaeontological remains will be stored securely until after compensation-in-kinds funds have been allocated, after which BC Hydro will seek a long-term repository for recovered palaeontological specimens, which could include a single or multiple natural history or educational facilities both within and outside of the Peace region.

In the fifth year of Project construction, BC Hydro will contact accredited museum facilities in the Peace region of British Columbia to discuss their interest in providing BC Hydro with a proposal for funds, in accordance with condition 64, for the curation and display of heritage resources recovered during the systematic data recovery efforts, and recovered as a result of surface inspection monitoring or chance find procedures. BC Hydro would support any discussions between facilities or with the Province, in the context of a specific proposal, which may be necessary with respect to the temporary or permanent curation or relocation of specific heritage remains.

## 8.0 Heritage Monitoring and Follow-Up Program

This section has been developed in accordance with Environmental Assessment Certificate Condition EAC 62 and Conditions 15.3.3 and 15.3.4 of the Federal Decision Statement.

*Specific sections within Condition 62:*

*Monitor reservoir erosion during occurrences of exposure to assess the impacts on existing or newly identified protected archaeological sites and other heritage resources.*

*Conduct the monitoring of shoreline erosion downstream (for approximately 2 km) as part of chance-find procedures to determine if physical heritage resources are affected by the Project. The EAC Holder must undertake this monitoring for any spills from the Project reservoir for a period of two years following the commencement of reservoir filling and commissioning.*

*15.3.3: procedures to monitor reservoir erosion during occurrences of low reservoir levels, to investigate any potentially new-found sites and to carry out emergency salvage procedures during construction and operation; and*

*15.3.4: procedures to monitor shoreline erosion downstream of the Site C dam for up to 2.5 kilometres during the first two years of operation to determine if physical heritage resources are affected.*

Follow-up work on archaeological sites that are affected by the Project would be prescribed by the conditions of HCA S.12 (Alteration) and S.14 (Inspection) Permit application(s) for the Project.

Consistent with BC Hydro's existing reservoir monitoring program, shoreline erosion of heritage resources within the reservoir will be monitored for a period of not less than the first five years of operation. As described in the Environmental Impact Statement (BC Hydro 2013, Volume 2, Section 11.2.3.7), approximately half of the predicted erosion over 100 years is expected to occur during the first five years of reservoir operation.

In addition to the systematic reservoir monitoring program, a chance find procedure will be maintained during the operations phase within the reservoir and extending approximately 2.5 kilometres downstream of the dam, including monitoring for any effects of spills.

From time to time other opportunities may arise for follow-up heritage work during Project operations, for example within the lower operating range of the reservoir during periods of maximum drawdown for scheduled and unscheduled maintenance. As part of BC Hydro's

existing reservoir monitoring program, such opportunities would be considered as they arise, and may include access to exposed heritage site locations, emergency salvage or systematic data collection.

Table 2 summarizes the follow-up program for heritage resources.

**Table 2: Project Operations - Heritage Monitoring and Follow Up Program**

Activity	Approach
Reservoir Operations	<ul style="list-style-type: none"> <li>■ Chance find procedure (P, A, H)</li> <li>■ Reservoir margin monitoring (P, A, H)</li> <li>■ Downstream river monitoring through chance find procedure (2.5 km downstream) (P, A, H)</li> <li>■ Additional mitigation measures may be applied based on the results of monitoring and any requirements of associated HCA permits. (A, H)</li> </ul>

## 9.0 Reporting

This section has been developed in accordance with Environmental Assessment Certificate Condition EAC 62 and Condition 15.6 of the Decision Statement:

*Specific section within EAC Condition 62: Establish a reporting structure for reporting to Aboriginal Groups and the Archaeology Branch beginning 180 days following the commencement of operations.*

*15.6: The Proponent shall implement the plan and provide to the Agency an analysis and summary of the implementation of the plan, as well as any amendments made to the plan in response to the results, on an annual basis during construction and for the first five years of operation, unless otherwise indicated.*

A Heritage Resources Management Annual Report will be prepared and provided to the BC Archaeology Branch and Aboriginal Groups which will summarise the key activities undertaken in accordance with this HRMP each year during Project construction.

The Heritage Resources Management Annual Report will be provided to the EAO, the Archaeology Branch (FLNR), Aboriginal groups in accordance with those listed on page 1 of the EAC conditions, and the Metis Nation of British Columbia.

Reporting will also be undertaken in accordance with HCA permit requirements.

## 10.0 Qualified Professionals

This section has been developed in accordance with Environmental Assessment Certificate Condition EAC 62:

*Specific section within EAC Condition 62: “The Heritage Resources Management Plan must be developed by a QEP”*

Table 3 lists the qualified individuals who prepared Heritage Resource Management Plan. The HRMP was reviewed by BC Hydro archaeologist Peter Vigneault, B.A., R.P.C.A. This list may be updated from time to time as personnel or service providers are changed or added to the program.

**Table 3: Qualified Professionals**

Qualified Environmental Professional	Area of Qualification	BC HCA Permit Holding Status
Diana Alexander, M.A., R.P.C.A.	Archaeology	YES
D’Arcy Green, M.A.	Archaeology	NO
Andrew (Andy) Mason, M.A., R.P.C.A.	Archaeology	YES
Adrian Myers, Ph.D.	Historical	NO
Doris Zibauer, M.A., R.P.C.A.	Historical	YES
Edward Davies, Ph.D., P. Geol. (BC, Alberta)	Palaeontology	n/a

## 11.0 References

- British Columbia Hydro and Power Authority (BC Hydro). 2013. Site C Clean Energy Project Environmental Impact Statement (EIS).
- British Columbia Ministry of Forests, Lands and Natural Resource Operations, Archaeology Branch (BC Archaeology Branch). 1998. *British Columbia Archaeological Impact Assessment Guidelines*. Victoria, BC.
- British Columbia Ministry of Forests, Lands and Natural Resource Operations, Archaeology Branch (BC Archaeology Branch). 1999. *Policy on Found Human Remains*. Available at: [https://www.for.gov.bc.ca/archaeology/policies/found\\_human\\_remains.htm](https://www.for.gov.bc.ca/archaeology/policies/found_human_remains.htm). Accessed: October 2014.
- British Columbia (BC) Ministry of Tourism, Culture and the Arts. 2010. *Heritage Conservation Memorandum of Understanding Between the Her Majesty the Queen in the Right of the Province of British Columbia (as represented by the Minister of Tourism, Culture and the Arts) and Doig River First Nation (as represented by its Chief), Prophet River First Nation (as represented by its Chief), and West Moberly First Nations (as represented by its Chief)*. Available at:

[http://www2.gov.bc.ca/assets/gov/topic/9EFBD86DA302A0712E6559BDB2C7F9DD/agreements/heritage\\_mou\\_doig\\_prophet\\_moberly.pdf](http://www2.gov.bc.ca/assets/gov/topic/9EFBD86DA302A0712E6559BDB2C7F9DD/agreements/heritage_mou_doig_prophet_moberly.pdf). Accessed October 2014.

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Ludvigsen, R. and G. Beard. 1994. *West Coast Fossils: A Guide to the Ancient Life of Vancouver Island*. Harbour Publishing. Madeira Park, BC.

## Appendix A: Process for Selecting Archaeological Sites for Excavation

As noted in Section 5.4 archaeological sites have been assigned to classes according to an assessment of their heritage significance, as determined using criteria set forth in the *British Columbia Archaeological Impact Assessment Guidelines*, Appendices D and E (BC Archaeology Branch 1998). These classes are defined as follows:

- Class I: This class represents the most complex archaeological sites, rated as having high to moderate significance with high artifact counts (>20) and four or more formed tools (cores or retouched artifacts) and utilized flakes. These sites also include one or more of the following: a variety of artifact types, “exotic” raw materials, stratified cultural deposits denoting multiple occupations, or faunal remains.
- Class IIa represents moderate to low significance archaeological sites, with 21 or more artifacts, three or fewer formed tools and utilized flakes, and one or more of the following attributes: exotic lithic raw materials, faunal remains, or evidence of multiple occupations.
- Class IIb represents low-to-moderate significance archaeological sites, composed of 20 or fewer artifacts with two or fewer formed or utilized tools, and the presence of exotic lithic raw materials, or faunal remains.
- Class IIc represents low significance archaeological sites, with two to 20 flakes. These sites do not contain any evidence of formed tools, utilized flakes, exotic lithic raw materials, or faunal remains.
- Class IId represents low significance archaeological sites that have either been destroyed (that is, a “legacy site”) or are composed of a single flake (isolated find). By definition, these sites do not contain any evidence for formed tools or utilized flakes, exotic raw materials, multiple occupations, or faunal remains.
- Class NA: A number of previously recorded archaeological sites are located in areas where permission to enter was not granted, or have original descriptions that are poor and could not be relocated. These sites have been included in archaeological overview level assessments, but insufficient information is currently available to assign these locations to classes.

The site classification process identifies those sites that have the greatest potential to answer questions about the prehistory of the PAZ. Both Class I and Class II archaeological resources within the PAZ have been taken into account in the development of a systematic data recovery (excavation) program as follows:

- Class I sites have the greatest potential to provide more archaeological information and larger and more diverse artifact assemblages with time depth. Archaeological excavations will be undertaken at each of these sites.
- Class II sites collectively have the potential to provide important information about Aboriginal land use associated with the most common type of archaeological site in the

area, the low density lithic artifact scatter. Archaeological excavation will be undertaken for a sample of Class II subclasses IIa, IIb, and IIc. These sites were divided into four strata according to side of the river, and valley versus plateau (i.e., North Valley, South Valley, North Plateau, and South Plateau), and using a table of random numbers, a random sample of sites were selected for systematic data recovery. The sample size is approximately 40% of Class IIa sites, 20% of Class IIb sites, and 15% of Class IIc sites.

- Class IId archaeological sites will not be subject to archaeological excavation due to their low significance (e.g. site is either previously destroyed or is comprised of a single stone flake).
- Over time, additional sites may be identified, or Class NA sites may be able to be classified. Newly identified Class I sites would be excavated in accordance with the above rationale. Newly identified Class IIa, IIb, and IIc sites would be considered within the context of the four strata above, and through discussion with the BC Archaeology Branch some of these may be subject to archaeological excavations prior to disturbance.

## REFERENCES CITED

British Columbia Ministry of Forests, Lands and Natural Resource Operations, Archaeology Branch (BC Archaeology Branch). 1998. *British Columbia Archaeological Impact Assessment Guidelines*. Victoria, BC.

## **Appendix B: Description of Heritage Mitigation Measures**

### **Avoidance Measures**

The preferred means of limiting effects to heritage sites is partial or complete avoidance by changing the design or placement of project components. The Project components that may offer some opportunity for some level of avoidance of heritage sites include:

- the placement of towers or temporary work areas along the transmission line,
- the final alignment or placement of temporary work areas within Highway 29 realignments,
- the final alignment of temporary or permanent access roads, and;
- quarries and construction material areas outside the dam site area.

### **B1. Effect Reduction Measures**

For components of the Project where avoidance or partial avoidance of effects to heritage sites is not possible, steps may be taken to reduce or minimize effects to these sites (see BC Archaeology Branch 1998). Potential approaches to reduce or minimize project effects on heritage resources are described in the sections below.

#### **Winter Ground Conditions**

Disturbance to heritage sites can be reduced by undertaking clearing activities on frozen and snow-covered surfaces. In areas where there are no other construction activities, such as the majority of the reservoir area, this is approach would be effective at reducing disturbance prior to inundation (Hester 1992). In areas where clearing may precede planned systematic data recovery, clearing during winter conditions reduces ground disturbance prior to completion of planned SDR.

#### **Relocation**

For historical structures and features relocation is a mitigation option commonly requested by community members, yet it can significantly affect heritage values (Bradshaw et al. 2011). Relocating a heritage structure, for example, removes the building from its original context, reduces the potential for interpretation, and severs the connection to the wider social, cultural, historical, and natural settings. Heritage values of the historical structure or site are often strongly connected to the surrounding landscape, natural environment, and geographical setting. Relocation should only be considered an appropriate mitigative tool when it can be shown that heritage values will continue to be preserved after the relocation process has been completed. Consultation with descendants, the local community and appropriate regulatory bodies prior to relocation is important to address how the historical materials would be transported, who would be involved with the relocation process, what ceremonies (if any) should be performed and by who, and where the heritage structure should be relocated.

## **Capping**

Site capping consists of placing a protective cover (e.g., sand, gravel, or lightweight fills such as closed-cell extruded polystyrene foam) on top of a heritage site as a means of protecting the deposits from disturbance, including erosion (Ardito 1994) and compaction (Davis et al. 2004). In some instances (e.g., road building), the infrastructure may be built on top of the protective cap.

Capping of archaeological sites is considered by the BC Archaeology Branch to be an appropriate mitigative measure when it can be demonstrated that important data will not be irrevocably lost through compaction, accelerated decomposition, horizontal displacement, or subtle changes in soil chemistry (BC Archaeology Branch 1998). Prior to capping, the BC Archaeology Branch may require systematic data recovery as compensation due to the inaccessibility of future investigations at the site.

## **Burial Site Mitigation**

For burial sites that cannot be avoided and therefore will be adversely affected by Project activities, there are several options. Relocation of the burial to a new location, in consultation with descendants (if known) to address how the remains would be recovered, how they would be transported, who would be involved with the relocation process, what ceremonies (if any) should be performed and by whom, and to where the burial should be relocated.

Capping of the burial in place is an option for burial sites that will remain *in situ*. Consultation with descendants (if known) can support decisions about how the remains would be covered and what ceremonies (if any) should be performed, and by whom.

Depending on the wishes of any known descendants, other suggestions may be made with respect to mitigation of burials prior to disturbance, such as commemoration of the location, leaving them in their current state, or other options that may be suggested.

## **B2. Systematic Data Recovery Measures**

Systematic data recovery involves field work intended to find, document and recover (collect) artifacts and associated information from heritage sites. The scope of such a program is typically commensurate with the assessed importance of the resource and the magnitude of the effect. Some of the more common forms of systematic data recovery are described below.

### **Surface Inspection and Collection**

The collection of palaeontological remains and artifacts observed on the ground surface or in natural or man-made exposures typically involves systematic ground surface inspection, mapping and documentation of surface finds, and collection of all, or a sample, of the materials observed.

### **Sub-surface Excavation and Collection**

Heritage site excavation can take a variety of forms, including fossil extraction and excavation within recorded archaeological sites or historical sites that include buried objects or features.

With respect to archaeological sites and to historical sites protected by the HCA, the BC Archaeology Branch is responsible, through permitting, for determining the scope of such investigations. All excavation within recorded archaeological sites would be done under an HCA permit. Due to the destructive nature of excavation, a data recovery program using acceptable methods and techniques must be implemented in recognition of the loss of future opportunities for scientific research, preservation, or public appreciation after excavation.

## **Documentation**

Documentation typically includes mapping and recording of heritage environments, structures or features. The goal is to create a record of the strata, feature, or structure.

The specific recording methods vary with the nature of the heritage resource, however commonly include the following:

- Production of maps or measured drawings at a precise scale from actual dimensions recorded in the field (e.g., plan and elevation drawings of historical structures);
- Detailed, high-resolution photographs and video;
- Discipline specific information
  - Written histories and oral histories to place archaeological or historical sites or structures within the appropriate context, addressing historical and architectural or engineering aspects; and
  - Paleo-ecological context or geological strata mapping of palaeontological sites.

## **Construction Monitoring**

Construction monitoring, also known as surveillance, can be undertaken during development-related activities, as a site discovery tool and as a means of monitoring the systematic removal of known heritage resources to enable the recording of site information and the collection of artifacts or fossils. Construction monitoring typically involves heritage professionals and trained assistants who inspect development activities in heritage site areas or areas with heritage site potential.

## **Chance Find Procedure**

A Chance Find Procedure (CFP) is a project-specific procedure that outlines the actions to be taken by Construction personnel if previously unknown heritage resources are encountered during construction. The Site C Clean Energy Project CFP will include a human remains protocol, to be followed should previously unrecorded human remains be exposed during construction activities. The CFP will be included in Contractor EPPs.

## **B3. Compensation-In-Kind**

Compensation-in-kind can include, but is not limited to, replication (replacement) of a feature such as a historical trail segment, funding for museums (special exhibits, public displays, or volunteer programs), public education (such as school programs, school teaching kits, publications, improved signage or adding new signage at unmarked sites, community lectures,

web sites, documentary film, or video), or creating an interpretive site. A public-oriented archaeological program that includes a field school under the direction of a local college or university and provides opportunity for public involvement (through volunteer positions or hiring of interested local community members) is another example of how compensation-in-kind can be used as a form of mitigation.

## **B4. References**

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