BC Hydro
Power smart

February 3, 2023

BC Environmental Assessment Office
2nd Floor, 836 Yates Street
P.O. Box 9426 Stn Prov Govt
Victoria, BC V8W 9V1
Attention: Elenore Arend, Associate Deputy Minister

Dear Elenore Arend:

Re: Environmental Assessment Certificate (EAC) #E14-02: Schedule A (Project Description) – Request to Amend Condition #4 regarding Removal of Temporary Structures

1. INTRODUCTION

The purpose of this letter is to seek an amendment to Condition #4 of Schedule B, Environmental Assessment Certificate (EAC) #E14-02 of the Site C Clean Energy Project (the "Project"). This condition requires that BC Hydro "manage harmful Project effects on fish and fish habitat during the construction and operation phases by implementing mitigation measures detailed in a Fisheries and Aquatic Habitat Management Plan (FAHMP). The Condition stipulates that the Plan must include among its requirements that temporary structures are removed "as soon as they are no longer required." The intent of this condition is to reduce the potential loss of fish habitat due to construction of the dam and generating station, Highway 29 realignment and Hudson's Hope Shoreline Protection.

As required by the EAC, BC Hydro incorporated the requirement to remove temporary structures as soon as they are no longer required into the FAHMP and the Project's Construction Environmental Management Plan (CEMP). As the Project schedule advances toward reservoir filling in 2023 or 2024, we have assessed several locations throughout the Project where the removal of temporary structures within the future reservoir may result in greater potential harm to fish and/or fish habitat than retaining them in place for reservoir filling. Therefore, pursuant to section 32(1) of the *Environmental Assessment Act*, BC Hydro is requesting that EAC Condition #4 be amended to reflect that temporary structures be removed ***unless removing the structure is likely to result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish, as assessed by a Qualified Environmental Professional. If the risk of removing the structure poses the same risk of harm to fish and fish habitat as retaining the structure for inundation, BC Hydro may retain the structure*** (emphasis added).

Information in this letter is provided in accordance with section 32 of the *Environmental Assessment Act* and section 7(4) of the EAC. This letter and attached appendices describe:

- The difference between the current requirements of EAC Condition #4 and BC Hydro's proposed amendment
- The impact of the proposed amendment to relevant valued components described in the Project's Environmental Impact Statement (EIS)
- The impact of the proposed amendment on Indigenous Nations and rights, in accordance with Section 25 of the *Environmental Assessment Act*

- Indigenous Nation consultation on BC Hydro's proposed amendment
- Government approvals related to the removal or retention of temporary structures

This submission also includes proposed updates to the FAHMP and CEMP to reflect the proposed amendment to Condition 4.

2. PROPOSED AMENDMENT TO EAC SCHEDULE B AND MITIGATION PLANS

Table 1 below summarizes the requested amendment to Condition 4 of EAC Schedule B, the FAHMP and CEMP.

Table 1. Current EAC Schedule B Text versus Proposed Text

	Existing Text	Proposed Text
Condition 4 EAC Schedule B – Extract	The EAC Holder must manage harmful Project effects on fish and fish habitats during the construction and operation phases by implementing mitigation measures detailed in a Fisheries and Aquatic Habitat Management Plan. The Fisheries and Aquatic Habitat Management Plan must be developed by a QEP. The Fisheries and Aquatic Habitat Management Plan must include at least the following: • Remove temporary structures as soon as they are no longer required.	The EAC Holder must manage harmful Project effects on fish and fish habitats during the construction and operation phases by implementing mitigation measures detailed in a Fisheries and Aquatic Habitat Management Plan. The Fisheries and Aquatic Habitat Management Plan must be developed by a QEP. The Fisheries and Aquatic Habitat Management Plan must include at least the following: • Remove temporary structures as soon as they are no longer required, ***unless removing the structure is likely to result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish, as assessed by a Qualified Environmental Professional. If the risk of removing the structure poses the same risk of harm to fish and fish habitat as retaining the structure for inundation, BC Hydro may retain the structure.***
FAHMP	Lists EAC Condition: "Remove temporary structures as soon as they are no longer required."	Lists EAC Condition: "Remove temporary structures as soon as they are no longer required, ***unless removing the structure is likely to***

	Existing Text	Proposed Text
		result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish, as assessed by a Qualified Environmental Professional. If the risk of removing the structure poses the same risk of harm to fish and fish habitat as retaining the structure for inundation, BC Hydro may retain the structure.
CEMP	Section 4.5 Fisheries and Aquatic Habitat Management Decommissioning and Site Restoration Unless otherwise authorized in a permit or approval, decommission and remove temporary structures used during construction within the construction season that they are deemed to be no longer required	Remove temporary structures as soon as they are no longer required, ***unless removing the structure is likely to result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish, as assessed by a Qualified Environmental Professional. If the risk of removing the structure poses the same risk of harm to fish and fish habitat as retaining the structure for inundation, BC Hydro may retain the structure.***

3. RATIONALE FOR RETENTION OF TEMPORARY STRUCTURES

BC Hydro is requesting the ability to retain temporary structures in locations of the future reservoir where removing the structures may result in greater harm to fish and/or fish habitat than retaining them in place for reservoir filling and/or when retaining the structure will provide a benefit to fish. All temporary structures that may potentially be retained in the reservoir will be assessed by a Qualified Environmental Professional (QEP) to determine if their removal would result in harm to fish and fish habitat and/or retaining the structure would provide a benefit to fish.

For example, inundating temporary reservoir causeways (used to access Peace River islands for reservoir clearing) may better for fish and fish habitat if removing the causeways, which are made of gravel and riprap, increases the risk of sedimentation and fuel spills from having equipment work in the river. In addition, if a temporary structure is large and more than one-third buried in the stream substrates (e.g., steel piles for the Moberly Debris Facility), its removal may result in a large amount of sediment being suspended and may result in undesirable changes to in-channel habitats[1]. In these cases, a QEP may

[1] Terms and Conditions for *Water Sustainability Act* Changes in and about a Stream as specified by Ministry of Forests, Lands & Natural Resource Operations (FLNRO) Habitat Officers, Northeast Region

determine that retaining the temporary structures within the reservoir is the best environmental practice.

BC Hydro will comply with the findings and recommendations of the QEP regarding the retention or removal of temporary structures. BC Hydro may retain a structure for inundation when a QEP determines that the retention of the temporary structure will result in equivalent or similar impact to its removal.

4. POTENTIAL STRUCTURES TO BE RETAINED IN RESERVOIR

Table 2 summarizes the temporary structures identified to date within the reservoir footprint. Appendix A shows the locations of the 45 structures identified within the footprint of the reservoir to date. In general, the temporary structures consist of:

- Portions of gravel/riprap causeways constructed for reservoir clearing
- Portions of causeways to access gravel material in reservoir
- Concrete abutments and riprap from temporary construction bridges
- Gravel pads for access ramps/boat launch for debris removal
- Concrete anchors for Moberly Debris Boom and Temporary Peace River Debris Booms
- Diversion channels for Highway 29 realignment made of riprap and rock-filled gabions

As shown in Table 2, the total area of temporary structures to potentially remain in the reservoir is expected to be less than 20 ha out of the 9,330 ha reservoir, or .21% of the reservoir. Many of the temporary structures are made of gravel that has been sourced from the Peace River itself and riprap that has been sourced from Portage Mountain Quarry. No materials having potential for leachates will be permitted to remain in the reservoir (e.g., treated wood piles).

Table 2 also summarizes the findings of the QEP assessment of the 45 temporary structures identified to date. A memorandum describing the QEP assessment is provided in Appendix B. The assessment indicates that for 41 structures, retaining the structure for inundation presents a lower risk of harm to fish and fish habitat than removing the structure. The QEP assessment also indicates that for 4 structures, retaining the structure prsents the same risk of harm to fish and fish habitat as removing the structure (for ease of reference, these 4 structures are the Peace River Debris Boom Anchors 4 and 5; Temporary Downstream Peace River Debris Boom Right Bank Access Road and the Downstream Peace River Debris Boom Temporary Boat Launch).

(https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/working-around-water/terms_and_conditions_northeast_region_sept_2016.pdf

Table 2. List of Temporary Structures Identified to Date for Potential Retention

Materials to Potentially Remain Instream	Approximate Instream Footprint (ha)	Top Elevation (m)	QEP Assessment Finding
Highway 29 Realignment at Cache Creek			
Concrete abutments and riprap from Cache Creek Temporary Detour Bridge	0.01	435	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
Diversion channel containing polymer coated, galvanized steel rock-filled gabions	0.30	434	Inundation of the temporary structure presents a lower risk of harm to fish and fish habitat than removal of the structure.
Highway 29 Realignment at Farrell Creek			
Diversion channel lined with riprap	0.14	444	Inundation of the temporary structure presents a lower risk of harm to fish and fish habitat than removal of the structure.
Highway 29 Realignment at Lynx Creek (Lynx Creek embankment)			
Four temporary causeways made of granular material	4.10	< 455	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
Dam Site Area			
Moberly River Bridge causeways and abutments	1.56	416.6	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
Steel piles and riprap access ramp making up the Moberly River Debris Infrastructure	0.10	<445	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
Six concrete anchors with riprap armour for the Moberly River debris boom	1.35	< 433 m	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
Four concrete anchors with gravel/riprap armour for the temporary upstream Peace River Debris Boom	1.90	< 433 m	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.

Materials to Potentially Remain Instream	Approximate Instream Footprint (ha)	Top Elevation (m)	QEP Assessment Finding
Barge pad consisting of granular material for the temporary upstream Peace River Debris Boom	0.12	420	Inundation of the temporary structure presents a lower risk of harm to fish and fish habitat than removal of the structure.
Boat ramp and access roads associated with the temporary upstream Peace River Debris Boom	0.20	<450	Inundation of the temporary structures presents the same risk of harm to fish and fish habitat than removal of the structures.
Four concrete anchors for the temporary downstream Peace River Debris Boom	1.90	<455	Inundation of 2 of the temporary anchors presents a lower risk of harm to fish and fish habitat than removal of the anchors. Inundation of 2 of the temporary anchors presents the same risk of harm to fish and fish habitat as removal of the anchors.
Boat launch / access causeway for temporary downstream Peace River Debris Boom	0.38	<455	Inundation of the temporary structures presents the same risk of harm to fish and fish habitat as removal of the structures.
Reservoir			
Portions of temporary causeways made of granular material and riprap used for reservoir clearing access	6.8	<455 m	Inundation of the temporary structures presents a lower risk of harm to fish and fish habitat than removal of the structures.
APPROXIMATE TOTAL AREA	**18.86**		

Given the QEP assessment, BC Hydro proposes to retain the 45 temporary structures described in this amendment request for inundation, should the EAC Amendment be issued.

5. IMPACT TO VALUED COMPONENTS ASSESSED IN EIS

The proposed plan to retain temporary structures in accordance with the proposed amendment is not anticipated to cause any adverse effects on valued components beyond the effects that were considered during the environmental assessment of the Project. The retention of temporary structures for reservoir filling will instead reduce any potential adverse effects to fish and fish habitat that may have been caused by their removal.

Table 3 provides an overview of BC Hydro's consideration of how the valued components described in the EIS interact with amendment. As shown in the table, the following valued components were

reviewed as having interactions with the proposal to retain temporary structures in the reservoir: fish and fish habitat, current use of lands and resources for traditional purposes, harvest of fish and wildlife and navigation.

Table 3. EIS Valued Components Interactions – Retention of Temporary Structures

Valued Component	Interaction Identified (Y/N)	Description
Fish and Fish Habitat	Y	Please see assessment below.
Vegetation and Ecological Communities	N	The EIS assessment of vegetation and ecological communities considers habitat alteration and fragmentation. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Wildlife Resources	N	The EIS assessment of wildlife resources considers habitat alteration and fragmentation, disturbance and displacement, and direct indirect mortality. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Greenhouse Gases	N	The EIS assessment of greenhouse gases considers the potential for Project activities to result in the release of greenhouse gas emissions. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Local Government Revenue	N	The EIS assessment of local government revenue considers local government expenditures on programs and services, local government revenues from property taxes, grants in lieu of payments, sales of services, transfers or other income. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Labour Market	N	The EIS assessment of the labour market considers labour supply and demand of workers with specific skills and training in proximity to the Project, throughout, British Columbia, Canada or internationally. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Regional Economic Development	N	The EIS assessment of regional economic development considers the Projects effects on the regions overall economy. Key indicators assessed were the regional business and contracting profile, capabilities, including Indigenous companies. The proposed plan to

Valued Component	Interaction Identified (Y/N)	Description
		remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Current Use of Lands and Resources for Traditional Purposes	Y	Please see assessment below.
Agriculture	N	The EIS assessment of agriculture considers interactions of the Project with the agricultural land base, farm operations, the agricultural economy, and food production and consumption. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Forestry	N	The EIS assessment of forestry considers changes in land use, resource use, access and activities related to industrial forest use, and changes in land use that affect Crown forest management. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Oil, Gas and Energy	N	The EIS assessment of oil, gas and energy considers changes in land and resource use for tenured oil, gas, and energy activities, operations and facilities, and changes in access for oil and gas industry activities. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Minerals and Aggregates	N	The EIS assessment of minerals and aggregates considers changes to land use, resource use, and access, the Project's use of local aggregate for construction activities, and any new or improved access to aggregate sources created by the Project. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Harvest of Fish and Wildlife	Y	Please see assessment below.
Outdoor Recreation and Tourism	N	The EIS assessment of outdoor recreation and tourism considers interactions with outdoor recreation and tourism features, amenities, sites, activities, visitor levels and use levels. The proposed plan to remove temporary structures in the reservoir *unless their removal will*

Valued Component	Interaction Identified (Y/N)	Description
		result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish) does not interact with this valued component.
Navigation	Y	Please see assessment below.
Visual Resources	N	The EIS assessment of visual resources considers visibility of Project components from selected sites, viewpoints, or predicted scenic values. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Population & Demographics	N	The EIS assessment of population and demographics considers a change in population as a result of the Projects demand for an in-migration of skilled workers. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Housing	N	The EIS assessment of housing considers that a change in population would drive a change in the demand for local housing. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Community Infrastructure and Services	N	The EIS assessment of community infrastructure and services considers that a change in population would affect infrastructure that services communities in Proximity to the project. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Transportation	N	The EIS assessment of transportation considers the effects of the Projects use of existing roadways, rail, and air modes of travel. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Heritage Resources	N	The EIS assessment of heritage resources considers disturbance to heritage sites and features, disturbance to elements essential to the heritage character, disturbance to artifacts, features, human remains, and fossils, hindrance or increase in access to sites, and other relevant issues raised by Indigenous groups in relation to palaeontological, archaeological and historical sites, as well as preservation of heritage

Valued Component	Interaction Identified (Y/N)	Description
		resources for cultural uses by Indigenous peoples. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.
Human Health	N	The EIS assessment of human health considers changes in air quality, water quality, noise and vibration, electric and magnetic fields and methylmercury levels in fish. The proposed plan to remove temporary structures in the reservoir *unless their removal will result in harm to fish and fish habitat (and/or retaining the structure will provide a benefit to fish*) does not interact with this valued component.

Fish and Fish Habitat

The EIS assessment of fish and fish habitat considers potential effects on fish habitat, fish health and survival and changes in fish movement. As described in the EIS, the transformation of a river ecosystem to a reservoir would create a new and productive ecosystem. However, the composition of fish species would change, with species that rely on riverine habitats declining – namely, the migratory component of the Moberly River Arctic grayling, migratory bull trout that spawn in the Halfway River, and Mountain Whitefish that rear in the Peace River and spawn in tributaries of the Peace River of upstream of the Site C dam site. As a result of the potential loss of these species, the EIS found that the Project may result in a significant adverse effect on fish and fish habitat.

The determination to remove or retain a temporary structure to reduce harm to fish and fish habitat will be made by a QEP, who will assess:

a) whether the work required to remove the temporary structure is expected to adversely affect fish or fish habitat, and the magnitude and duration any adverse effect;
b) whether removal of the temporary structure is expected to have a long-term adverse affect on fish or fish habitat, or a long-term benefit to fish or fish habitat; and,
c) whether retention of the temporary structure is expected to have a long-term adverse affect on fish or fish habitat, or a long-term benefit to fish or fish habitat.

The proposed amendment is not anticipated to result in any incremental adverse effects on fish and fish habitat because temporary structures will be removed unless their removal will result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish. The proposed amendment is therefore not anticipated to affect the conclusions of the environmental assessment regarding the effects of the Project on fish and fish habitat.

Current Use of Land and Resources for Traditional Purposes

Project effects on Current Use of Lands and Resources for Traditional Purposes were assessed in the EIS by considering Project changes to current use of lands and resources for hunting, fishing and trapping activities, as well as current use of lands and resources for activities other than hunting, fishing and

trapping by Indigenous Nations. The proposed amendment is not expected to interact with wildlife resources or to result in any additional effects on fish and fish habitat or other use of land and resources for cultural purposes beyond what was assessed in the EIS. The proposed amendment is therefore not anticipated to affect the conclusions of the environmental assessment regarding the effects of the Project on current use of land and resources for traditional purposes.

Harvest of Fish and Wildlife Resources

The EIS assessment of harvest of fish and wildlife resources considers the use of and access to hunting, fishing, trapline and guide outfitter areas, tenure areas, or the availability of harvested species based on the affects to fish and fish habitat, and wildlife resources. The proposed amendment is not expected to interact with wildlife resources or to result in any additional effects on fish and fish habitat beyond what was assessed in the EIS. The proposed amendment is therefore not anticipated to affect the conclusions of the environmental assessment regarding the effects of the Project on harvest of fish and wildlife resources.

Navigation

The EIS assessment of navigation considers changes and potential effects to water-based navigation (navigation) and air navigation (aviation). The EIS determined that the dam and associated permanent restriction to navigation would result in an adverse residual effect that remains after mitigation measures are in place. However, new types of navigable uses on the reservoir would be available during Project operations.

All temporary structures will be below elevation 455 m, which is five meters below the normal minimum operating level of the reservoir (460 m elevation). Therefore, the structures are not anticipated with interfere with navigation and the proposed amendment is not anticipated to affect the conclusions of the environmental assessment regarding the effects of the Project on Navigation.

6. RELATED STUDIES

The following sections of the EIS provide additional information regarding the assessed effects of retaining temporary structures in the reservoir for the Site C Project:

- Volume 2, Section 12, Fish and Fish Habitat
- Volume 3, Section 19 Current Use of Lands and Resources for Traditional Purposes
- Volume 3, Section 24, Harvest of Fish and Wildlife Resources
- Volume 3, Section 26, Navigation

7. INDIGENOUS GROUP CONSULTATION/ENGAGEMENT

BC Hydro's draft request to EAO to amend Condition #4 of Schedule B, EAC #E14-02 was provided to the following Indigenous Nations on December 8, 2022: Blueberry River First Nation, Dene Tha' First Nation, Doig River First Nation, Duncan's First Nation, Fort Nelson First Nation, Halfway River First Nation, Horse Lake First Nation, McLeod Lake Indian Band, Saulteau First Nations, Prophet River First Nation West Moberly First Nations, Kelly Lake Métis Settlement Society and Métis Nation British Columbia. BC Hydro requested that Indigenous Nations provide comments by January 20, 2023. Indigenous Nations were

advised that their input would inform the final amendment request to be submitted by end of January 2023. Doig River First Nation provided comments to BC Hydro on the draft EAC Amendment request on January 10, 2023. BC Hydro responded to the comments on January 12, 2023.

The proposed amendment request was also discussed with Indigenous Nations at Environmental Forums on November 16, 2022 and January 24, 2023. Offers to meet to review the draft amendment request were also made to Indigenous Nations.

Regulatory and compliance matters for BC Hydro's northeast projects (including Site C) are discussed during regular/monthly meetings with some BC Treaty 8 First Nations. Upon request, the proposed plan to amend Condition #4 of Schedule B, EAC #14-02 regarding temporary structures can also be discussed at meetings scheduled for 2023.

8. IMPACT OF PROPOSED AMENDMENT ON INDIGENOUS GROUPS AND RIGHTS

Appendix C provides an assessment of potential impacts of the proposed amendment on Indigenous groups and rights, in accordance with Section 25 of the Environmental Assessment Act.

9. GOVERNMENT APPROVALS

In addition to Environmental Assessment Certificate #E14-02 and the federal Decision Statement authorizing the Site C Project, construction of the temporary structures within the reservoir are authorized under various permits and tenures under the *Land Act*, *Water Sustainability Act*, *Wildlife Act*¸ *Heritage Conservation Act,* and *Forest Act*. Approvals are available on the Project's website, at: https://www.sitecproject.com/document-library/permits-and-authorizations.

Appendix D provides a summary of amendments received to date to EAC #14-02 for the Site C Clean Energy Project.

10. ATTACHMENTS

Appendix A: Overview of Temporary Structures within the reservoir

- Figure 1 (Overview) showing locations of proposed temporary structures to be retained. Note: Additional structures may be added as project planning develops.

Appendix B: QEP Technical Memorandum

- QEP Assessment of Temporary Structures within the footprint of the Site C Reservoir

Appendix C: Indigenous Groups and Rights

- Assessment of Impact of Proposed Amendment on Indigenous Groups and Rights.

Appendix D: Site C Environmental Assessment Certificate #14-02

- List of EAC Amendments for the Site C Project to date.

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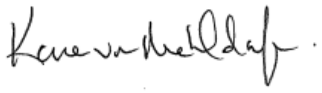
11. CLOSURE

I trust this submission provides useful information regarding BC Hydro's request to amend Condition #4 of Schedule B, EAC #E14-02. We look forward to discussing this amendment with you further. In the meantime, please don't hesitate to contact me if you have any questions or comments.

Regards,

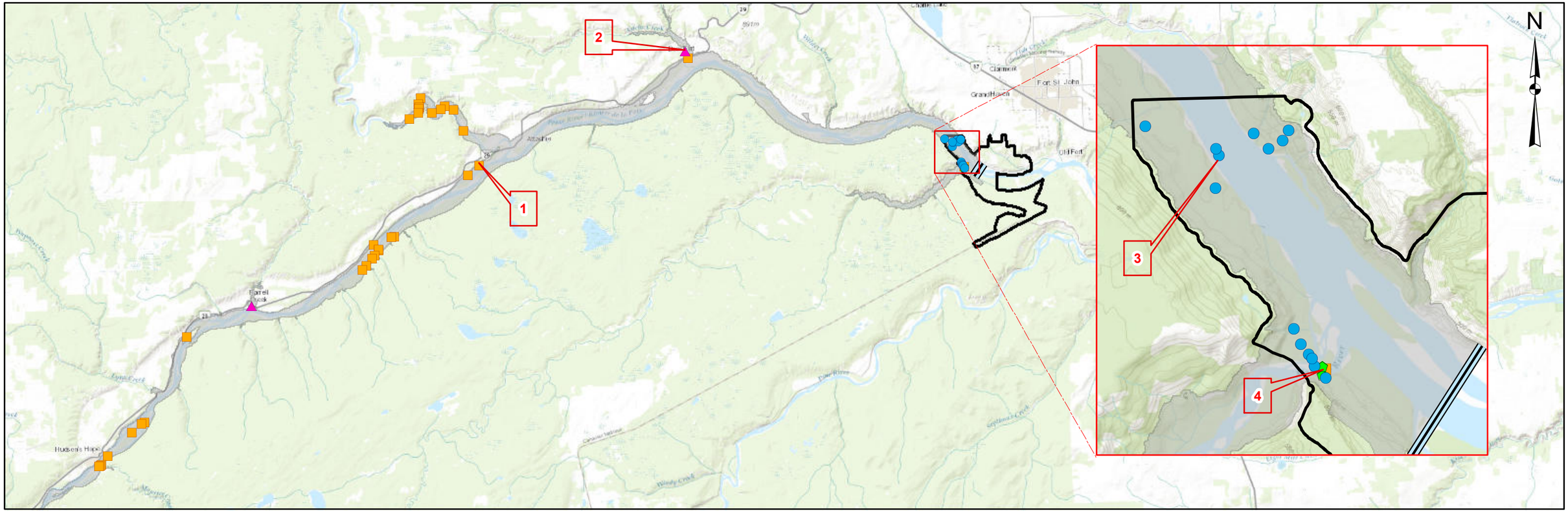


Karen von Muehldorfer
Regulatory Manager
Site C Clean Energy Project
Karen.vonMuehldorfer@bchydro.com

Cc: Shanna Mason, Environment, Regulation, Community Impacts & Properties Director, BC Hydro
Sarah Duggan, Project Assessment Director, Environmental Assessment Office

Appendix A: Overview of Temporary Structures within the reservoir

- Figure 1 (Overview) showing locations of proposed temporary structures to be retained.
- Note: Additional structures may be added as project planning develops.

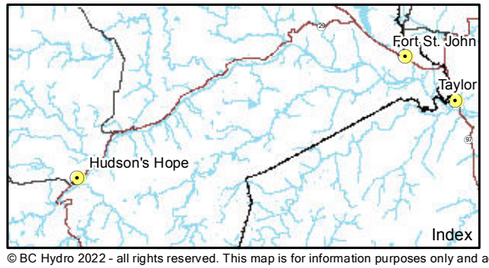


1 - Temporary Causeway for Reservoir Clearing (causeway example)

2 - Temporary Diversion at Cache Creek (similar diversion at Farrell Creek)

3 - Temporary Peace River Debris Boom Anchor (typical anchor)

4 - Temporary Moberly River Debris Piles (example of piles)



Map Notes:
1. Datum: NAD83
2. Projection: UTM Zone 10N
3. Basemap: ESRI World Topographic

Legend

Structure

- Access Causeways and Crossing Abutments
- Diversion Channel
- Moberly River Debris Piles
- Debris Anchor
- Maximum Normal Reservoir Level (461.8m)
- Dam Site Area

1:270,000 2 0 8 km

BC Hydro

Site C Clean Energy Project
Temporary Structures in Reservoir to be Assessed for Removal / Retention

Date	Dec. 8, 2022	DWG NO	1016-N11-01641	R 0

Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

DRAFT - FOR DISCUSSION PURPOSES ONLY - CONFIDENTIAL

Path: X:\Outputs\Calculations\Reservoir Temp Structures\Reservoir Temp Structures_1016-N11-01641.mxd

Appendix B: QEP Technical Memorandum

- QEP Assessment of Temporary Structures within the footprint of the Site C Reservoir – removal or retention.

TECHNICAL MEMORANDUM

DATE 2 February 2023 **Reference No.** 20136470-025-TM-Rev0

TO Karen von Muehldorfer
BC Hydro

CC

FROM Katie Frye, Dustin Ford **EMAIL katie.frye@wsp.com**

SITE C CLEAN ENERGY PROJECT – QP ASSESSMENT OF TEMPORARY STRUCTURES WITHIN THE FOOTPRINT OF THE SITE C RESERVOIR - REMOVAL OR RETENTION

WSP Canada Inc. (WSP) is pleased to provide to BC Hydro the following technical memo presenting the results of the risk assessment for removal and/or retention of temporary structures installed during the construction phase of the Site C Clean Energy Project (the Project).

BC Hydro provided WSP with a list of 45 temporary structures, which included information as follows:

- Descriptive location
- Structure type
- Portion to remain instream
- Instream footprint (in hectares)
- Elevation (in metres above sea level [masl])
- Location coordinates (in UTM)
- Predicted requirements for decommissioning to occur
- Relevant reference documents

BC Hydro has completed removal of some of the components of these temporary structures but is considering retaining the portions currently remaining instream indefinitely. WSP has completed a risk assessment to evaluate the relative risk to fish and fish habitat from removal versus retention of the remaining components of these 45 temporary structures.

1.0 BACKGROUND

Temporary structures include temporary causeways, diversions, debris boom anchors, and debris piles. Full reservoir capacity (i.e., elevation 461.8 masl) will inundate riverine habitat, permanently converting it to lacustrine-like reservoir habitat. The temporary structures will be inundated when the reservoir is at full capacity.

2.0 METHODS

A risk assessment framework was used to aid in the decision-making process. Assessment methodology applied to the project is based on similar risk assessment frameworks presented by Fletcher (2007) and Hobday et al. (2007). The object of the risk assessment is to provide an estimated quantitative level of relative risk for serious or irreversible harm to fish and fish habitat resulting from the retention versus removal of temporary structures within the reservoir footprint.

The risk assessment was divided into three categories:

1) Risk ratings associated with retention of the temporary structure instream based on structure-specific information.

2) Risk ratings associated with retention of the temporary structure instream based on effects to fish and fish habitat.

3) Risk ratings associated with removal of the temporary structure.

The Excel table which was used as the working risk assessment tool, is presented in Attachment 1. The risk assessment process was conducted as follows:

- Factors: Within each of the three categories described above, various factors were considered (the column titles shown in white across the top of Attachment 1). For example, within Category 1 (structure specific information), instream footprint, material to remain instream, as well as a number of factors associated with the elevation of the structures, and if recontouring or restoration had been previously conducted on the structures were rated.
- Factor Selections: For each factor, a drop-down list was created with a set of options for selection (i.e., the green cells presented in green in Attachment 1). For example, instream footprint had options: 0 to 0.1 ha, 0.1 to 0.55 ha, 0.55 to 2.0 ha, or greater than 2.0 ha.
- Risk ratings: Each option has a corresponding risk rating (from 0 to 4), with 0 being low risk and 4 being high risk (i.e., the first column in grey after each factor column in Attachment 1).
- Weighting: Each factor was also assigned a weight (from 1 to 3) with 1 being low importance and 3 being high importance (i.e., the second column in grey after each factor column in Attachment 1).
- Overall category risk ratings: Overall risk ratings for each of the three categories were calculated based on the above inputs. These ratings are from 1 to 5, with 1 being very low risk and 5 being very high risk (i.e., the blue columns in Attachment 1).

2.1 Risk Assessment Inputs

2.1.1 Temporary Structure Information

The purpose of this category is to assess the risk to fish and fish habitat associated with the retention of the specified components of each temporary structure through reservoir inundation. This category focuses on producing ratings based on structure specific information. The factors, weighting, set options under each factor, and risk ratings associated with each option that were used to produce overall risk ratings for this category are presented in Table 1.

Table 1: Temporary Structure Retention – Structure Specific Risk Assessment

Scale of Effect Category	Factor	Weighting	Options	Risk Rating
Extent	Instream Footprint	3	0 to 0.1 ha	1
			0.1 to 0.55 ha	2
			0.55 to 2.0 ha	3
			>2.0 ha	4
Duration and Intensity	Material to remain instream	3	Concrete	3
			Steel piles	3
			Corrugated steel culvert	3
			Clean gravels	1
			Poly	3
			Deleterious substances	4
			Gabion armoring	3
			Rip rap	2
			Fill	2
			Geotextile	3
			None	0
Intensity	Full Inundation during reservoir filling	3	Yes	4
			No	0
	Potential for shoreline exposure during low water	3	Yes	4
			No	0
	Structure potential to become located within the littoral zone	3	Yes	4
			No	0
	Environmental concerns noted in previous reports	3	Yes	4
			No	0
	Recontouring / Restoration Works Conducted?	3	Yes	0
			No	4

The risk rating value for each option was assigned considering the scale of the effect of retaining the temporary structure, including the following:

- Extent of the effect
- Duration of the effect
- Intensity of the effect

2.1.2 Fish Habitat Information

The purpose of this category is to assess the risk to fish and fish habitat associated with the retention of the specified components of each temporary structure through reservoir inundation. This category focuses on producing ratings based on fish and fish habitat specific information. The factors, weighting, set options under each factor, and risk ratings associated with each option, used to produce overall risk ratings for this category are presented in Table 2.

The risk rating value for each option was assigned considering the sensitivity of fish and fish habitat at the structure location, including the following:

- Species sensitivity
- Species' dependence on habitat
- Rarity

Table 2: Temporary Structure Retention - Fish and Fish Habitat Risk Assessment

Scale of Effect Category	Factor	Weighting	Options	Risk Rating
Species sensitivity and Rarity	Species at risk within area	3	Yes	4
			No	0
Species' Dependence on Habitat	Original dominant substrate	3	Silt	1
			Fines	3
			Gravel	4
			Cobble	2
			Boulder	1
			Bedrock	1
			Other	1
			None	0
	Original subdominant substrate	3	Silt	1
			Fines	3
			Gravel	4

Scale of Effect Category	Factor	Weighting	Options	Risk Rating
			Cobble	2
			Boulder	1
			Bedrock	1
			Other	1
			None	0
	Homogeneity	3	Yes	0
			No	4
	Dominant substrate created by temporary structure	3	Concrete	3
			Steel piles	3
			Clean gravels	1
			Poly	3
			Deleterious substances	4
			Gabion armoring	3
			Rip rap	2
			Fill	2
			Geotextile	3
			None	0
	Structure has potential to partially or fully strict flow or fish movement	3	Yes	4
			Partial	2
			No	0
	Potential contaminants of concern	3	Yes	4
			No	0
	Potential for entrapment	3	Yes	4
			No	0
	Structure source for erosion or sedimentation	3	Yes – long term	4
			Yes – short term	2
			No	0

2.1.1 Removal Information

The Removal Risk Assessment is intended to assess the risk to fish and fish habitat associated with the removal of the specified components of each temporary structure prior to reservoir inundation. The factors, weighting, set options under each factor, and risk ratings associated with each option used to produce overall risk ratings for this category are presented in Table 3.

The risk rating value for each option was assigned considering the scale of the effect of retaining the temporary structure, including the following:

- Extent of the effect
- Duration of the effect
- Intensity of the effect

Each structure was assessed independent of other structures in the area (e.g., building a bridge could gain access to multiple structures, but these potential efficiencies were not considered in the ratings).

Table 3: Temporary Structure Removal Risk Assessment

Scale of Effect Category	Factor	Weighting	Options	Risk Rating
Extent	Deactivated	3	Yes	4
			No	0
	Reactivation required for removal	3	Yes	4
			No	0
	Instream work required for removal	3	Yes	4
			No	0
	Additional instream works footprint for removal works	3	Yes	4
			No	0
	Number of stream crossings required for access	3	9	4
			8	3.6
			7	3.1
			6	2.7
			5	2.2
			4	1.8
			3	1.3
			2	0.9
			1	0.4
			0	0
Duration	Days required instream	3	Greater than one month	4
			Greater than one week	3
			Greater than one day	2
			Less than or equal to one day	1
			None	0

Scale of Effect Category	Factor	Weighting	Options	Risk Rating
Intensity	Effort required for removal	3	Heavy equipment required	4
			Hand tools required	2
			None	0
	Species at risk within area	3	Yes	4
			No	0

2.2 Risk Assessment Output

Based on the options and corresponding ratings chosen for each factor within the three categories, three overall risk ratings (one for each category) were produced for each structure.

To assess the risk to fish and fish habitat of retaining the portions of the temporary structures currently remaining instream through reservoir inundation, structure specific risks associated with temporary structure retention, as well as fish and fish habitat sensitivity at each location, were considered. The risk ratings for each of these two categories ranged from 1 (low risk) to 5 (high risk). These individual risk ratings were combined to create an overall risk rating for structure retention as shown in Figure 1.

		Temporary Structure Impacts						
		5	4	3	2	1		
Fish and Fish Habitat Sensitivity	5	25	20	15	10	5	0-3	Very Low Risk
	4	20	16	12	8	4	4-6	Low Risk
	3	15	12	9	6	3	8-12	Moderate Risk
	2	10	8	6	4	2	15-16	High Risk
	1	5	4	3	2	1	20-25	Very High Risk

Figure 1: Estimated Overall Risks to Fish and Fish Habitat of Temporary Structure Retention

To assess the risk to fish and fish habitat of removing the portions of the temporary structures currently remaining instream through reservoir inundation, structure-specific risks associated with temporary structure removal at each location were considered. The risk ratings for this category ranged from 1 (low risk) to 5 (high risk) and was the overall risk rating for structure removal as shown in Figure 2.

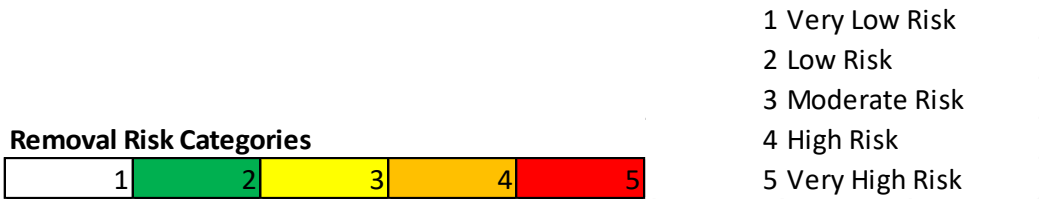


Figure 2: Overall Risk Ratings to Fish and Fish Habitat of Temporary Structure Removal

3.0 RESULTS

This section summarizes the results of the risk assessment. In the following tables, the final two columns present the overall risk for retention and the overall risk for removal. The color of the cell presents the overall risk ratings, with the numbers being provided as supplementary information. Note that retention ratings are from 0 to 25 and removal rating are from 0 to 5, so a higher number for retention does not necessarily indicate a higher risk relative to removal.

The risk assessment results for temporary structures located within the Highway 29 area are shown in Table 4. The risk for removal has been assessed to be higher than the risk for retention for all structures located within the Highway 29 area.

Table 4: Risk Ratings for Temporary Structures located within the Highway 29 Area

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
1	Hwy 29 at Cache Creek	Detour Bridge	Concrete abutments and rip rap	2	3	6	3
2	Hwy 29 at Cache Creek	Diversion Channel	Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	2	3	6	4
3	Hwy 29 at Farrell Creek	Diversion Channel	Rip Rap Diversion Berm	2	3	6	4
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	Causeways	2	3	6	4

The risk assessment results for temporary structures located within the Dam Site area at Moberly River are shown in Table 5. The risk for removal has been assessed to be higher than the risk for retention for structures 5 through 9.

Table 5: Risk Ratings for Temporary Structures located within the Dam Site Area at Moberly River

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
5	Dam Site	Moberly River Bridge	Causeways and abutments to be inundated.	2	3	6	3
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	2	3	6	3
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 1	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 2	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 3	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 4	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 4a	2	1	2	2
8	Dam Site	Moberly River Debris Boom	Anchor 5	2	1	2	2
9	Dam Site	Moberly River Debris Boom Access Road	Entire Access	2	1	2	2

The risk assessment results for temporary structures located within the Dam Site area at the Upstream Peace River, are shown in Table 6. The risk for removal has been assessed to be higher than the risk for retention for structures 10 through 13.

Table 6: Risk Ratings for Temporary Structures located within the Dam Site Area at the Upstream Peace River

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
10	Dam Site	Upstream Peace River Debris Boom	RB Downstream Anchor	2	1	2	2
10	Dam Site	Upstream Peace River Debris Boom	RB Upstream Anchor	2	1	2	2

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
10	Dam Site	Upstream Peace River Debris Boom	LB Downstream Anchor	2	1	2	2
10	Dam Site	Upstream Peace River Debris Boom	LB Upstream Anchor	2	1	2	2
11	Dam Site	Upstream Peace River Debris Boom	Barge pad extension consisting of granular material	2	1	2	2
12	Dam Site	Upstream Peace River Debris Boom	Boat Ramp extension	2	1	2	2
13	Dam Site	Upstream Peace River Debris Boom	Left Bank Access Road	2	1	2	2
13	Dam Site	Upstream Peace River Debris Boom	Right Bank Access Road	2	1	2	2

The risk assessment results for temporary structures located within the Dam Site area at the Downstream Peace River, are shown in Table 7. The risk for removal has been assessed to be equal to the risk for retention for structure 14, anchors 4 and 5, and structure 15, Right Bank Access Road and Boat Launch. The risk for removal has been assessed to be higher than the risk for retention for structure 14, Anchors 1, 2, 3, and 6, and structure 15 Left Bank Access Road.

Table 7: Risk Ratings for Temporary Structures located within the Dam Site Area at the Downstream Peace River

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 1	2	1	2	2
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 2	2	1	2	2

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 3	2	1	2	2
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 4	2	3	6	2
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 5	2	3	6	2
14	Dam Site	Temporary Downstream Peace River Debris	Anchor 6	2	1	2	2
15	Dam Site	Temporary Downstream Peace River Debris	Right Bank Access Road	2	3	6	2
15	Dam Site	Temporary Downstream Peace River Debris	Boat Launch	2	3	6	2
15	Dam Site	Temporary Downstream Peace River Debris	Left Bank Access Rad	2	1	2	2

The risk assessment results for temporary structures located within the Reservoir (LTC12D) Halfway River Drainage are shown in Table 8. The risk for removal has been assessed to be higher than the risk for retention for structures 16 to 25. The overall risk for removal for structures 22, 23, 24, and 25 was assessed to be very high due to the requirement for reactivation of access, which would include 4 or more stream crossings for access, as well as heavy equipment use for structure removal.

Table 8: Risk Ratings for Temporary Structures located within the Reservoir (LTC12D) Halfway River Drainage

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	3	2	6	3
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	2	3	6	4

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	1	3	3	4
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	1	3	3	4
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	1	3	3	4
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	2	3	6	4
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	1	3	3	5
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	1	2	2	4
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	1	2	2	4
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	1	2	2	4

The risk assessment results for temporary structures located within the Reservoir (LTC15A – 12E2 and LTC15D) Halfway River to Farrell Creek, are shown in Table 9. The risk for removal has been assessed to be higher than the risk for retention for structures 26 through 37.

Table 9: Risk Ratings for Temporary Structures located within the Reservoir (LTC15A – 12E2 and LTC15D) Halfway River to Farrell Creek

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	1	2	2	4

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	2	3	6	4
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	1	2	2	4
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	2	2	4	4
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	2	2	4	4
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	2	2	4	4
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	2	1	2	3
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	2	2	4	3
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure. Rip rap and gravel materials. Geotextile.	3	1	3	3
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	3	1	3	3
36	Reservoir (LTC15D) – SB – Halfway River to	Crossing WR6a	Abutments and pier	2	1	2	3

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
	Farrell Creek Phase 2						
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	2	3	6	4

The risk assessment results for temporary structures located within the Reservoir (LTC15E) Farrell Creek to Peace Canyon are shown in Table 10. The risk for removal has been assessed to be higher than the risk for retention for structures 38 to 44. The overall risk for removal for structures 38 and 39 was assessed to be very high due to the requirement for reactivation of access, which would include 4 stream crossings for access, as well as heavy equipment use for structure removal.

Table 10: Risk Ratings for Temporary Structures located within the Reservoir (LTC15E) Farrell Creek to Peace Canyon

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	2	3	6	5
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	1	3	3	5
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	2	3	6	4
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	2	3	6	4
42	Reservoir (LTC15E) Farrell Creek	Crossing WR32	Abutments	1	3	3	4

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
	to Peace Canyon						
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	2	3	6	4
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	1	3	3	4

The risk assessment results for the temporary structure located within the Reservoir (LTC4B) Watson Slough are shown in Table 11. The risk for removal has been assessed to be higher than the risk for retention for structure 45.

Table 11: Risk Ratings for Temporary Structures located within the Reservoir (LTC15E) Farrell Creek to Peace Canyon

Temporary Structure Information				Retention			Removal
#	Location	Structure	Portion to Remain Instream	Structure Specific (Rounded)	Fish Habitat (Rounded)	Overall Retention Rating (0-25)	Overall Removal Rating (0-5)
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	2	1	2	2

4.0 ASSUMPTIONS

The following assumptions were made during the assessment:

- If footprint area of a structure was not provided by BC Hydro and was not available in the background data, a desktop estimate was derived using imagery in Google Earth.
- If elevation data were not available, it was estimated using Google Earth.
- The maximum normal water level will not exceed 461.8 masl.
- Where information regarding environmental concerns was not noted in documentation, the option of “No” was selected.

- Concrete, rip-rap, steel piling and corrugated steel pipes were not considered PCOCs as these materials were assumed to be approved materials for in-stream structures.
- Steel gabion baskets and potential for steel degradation were considered a potential for fish entrapment.
- Gravel and riprap will lead to short term erosion and/or sedimentation.
- If deactivation information for a given structure was limited, the assessment was based on data from similar, adjacent structures.

5.0 CONCLUSIONS

The risk to fish and fish habitat of retaining the specified components of the 45 temporary structures through reservoir inundation has been assessed to be lower than or equal to the risk of reactivation of access and removal of the components.

The changes to fish and fish habitat caused by the removal or retention of the specified components of the temporary structures would be negligible compared to the changes to fish habitat associated with reservoir inundation.

WSP acknowledges that BC Hydro committed to the removal of these structures, and that this commitment has not been considered as part of this risk assessment.

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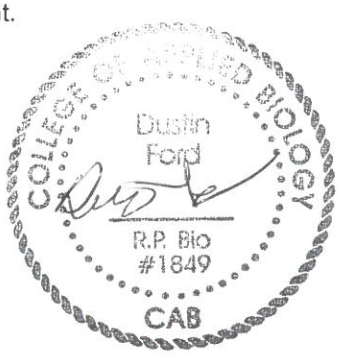

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Attachments: Attachment 1 – Risk Assessment Tool

6.0 REFERENCES

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Hobday, A. J., A. Smith, H. Webb, R. Daley, S. Wayte, C. Bulman, J. Downdney, A. Williams, M. Sporcic, J. Dambacher, M. Fuller, T. Walker. 2007. Ecological Risk Assessment for the Effects of Fishing: Methodology. Report R04/1072 for the Australian Fisheries Management Authority, Canberra, Australia.

ATTACHMENT 1

Risk Assessment Tool

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	QEP Sign Off	Overall Structure Type	Location within Project Footprint	Instream Footprint	Rating	Weight	Material to remain instream (1)	Rating	Weight	Material to remain instream (2)	Rating	Weight
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	DF DF	Bridge	Highway Diversion	0 to 0.1	1	3	Rip rap	2	3	Concrete	3	3
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	DF DF	Diversion Channel	Highway Diversion	0.1 to 0.55	2	3	Gabion armoring	3	3	None	0	3
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	DF DF	Diversion Channel	Highway Diversion	0.1 to 0.55	2	3	Rip rap	2	3	None	0	3
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	DF DF	Causeway	Highway Diversion	>2.0	4	3	Fill	2	3	Rip rap	2	3
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	DF DF	Causeway	Dam Site	0.55 to 2.0	3	3	Concrete	3	3	Rip rap	2	3
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	DF DF	Debris Piles	Dam Site	0 to 0.1	1	3	Steel piles	3	3	None	0	3
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	DF DF	Road	Dam Site	0.1 to 0.55	2	3	Clean gravels	1	3	None	0	3
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02 0.02 0.02 0.02 0.02 0.02	Anchor 1 – 433.50m Anchor 2 – 413.90m Anchor 3 – 413.50m Anchor 4 – 413.90m Anchor 4a – 413.50m Anchor 5 – 433.50m	Anchor 1: 6230359 N 628223 E Anchor 2: 6230232 N 628279 E Anchor 3: 6230150 N 628340 Anchor 4: 6230062 N 628387 E Anchor 4a: 6230121 N 628369 E Anchor 5: 6229967 N 628475 E	No FFHA available as works authorized under FAA.	DF DF DF DF DF DF DF DF DF DF DF DF	Debris Boom	Dam Site	0 to 0.1	1	3	Concrete	3	3	Rip rap	2	3
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	DF DF DF	Road	Dam Site	0.1 to 0.55	2	3	Clean gravels	1	3	Rip rap	2	3
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha 0.02 ha 0.02 ha	RB Downstream Anchor – 433.10 m RB Upstream Anchor – 414.50m LB Downstream Anchor – 433.10 m LB Upstream Anchor – 415.80	6231471N 627602E 6231731N 627627E 6231847N 628135E 6231904N 627902E	Instream footprint includes original access roads, boat launch and boom anchor points. Culverts installed in back channel to access RB anchor to be removed.	DF DF DF DF DF DF DF DF	Debris Boom	Dam Site	0 to 0.1	1	3	Concrete	3	3	Rip rap	2	3
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	DF	Road	Dam Site	0 to 0.1	1	3	Fill	2	3	None	0	3
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill. Culverts installed in boat ramp to be removed.	DF DF DF	Road	Dam Site	0.1 to 0.55	2	3	Fill	2	3	None	0	3
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m *Right Bank Access Road – Top Elevation 437.0m	LB – 6231930 N 628182 E RB – 6231961 N 627044 E	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	DF DF DF DF DF	Road	Dam Site	0.1 to 0.55	2	3	Fill	2	3	None	0	3
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha 0.02 ha 0.02 ha 0.02 ha 0.01 ha 0.02 ha	Anchors 1 and 6 Top Elevation 433.0m Anchors 2-5 submerged Top Elevations 413 to 417 m Anchors 1-3 on LB Anchors 4-6 on RB	Anchor 1:6231520 N 628383 E Anchor 2:6231483 N 628343 E Anchor 3:6231486 N 628264 E Anchor 4:6231284 N 627975 E Anchor 5:6231245 N 627939 E Anchor 6:6231060 N 627892 E	No FFHA available as works authorized under FAA.	DF DF DF DF DF DF	Debris Boom	Dam Site	0 to 0.1	1	3	Concrete	3	3	Rip Rap	2	3
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m Boat Launch – Top Elevation 412.8m	RB Access: 6231024 N 627860 E Boat launch: 6231498 N 628237 E	No FFHA available as works authorized under FAA.	DF DF DF	Road	Dam Site	0.55 to 2.0	3	3	Fill	2	3	Rip rap	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	QEP Sign Off	Overall Structure Type	Location within Project Footprint	Instream Footprint	Rating	Weight	Material to remain instream (1)	Rating	Weight	Material to remain instream (2)	Rating	Weight
								DF											
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		DF	Road	Dam Site	0.55 to 2.0	3	3	Fill	2	3	Rip rap	2	3
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Clean gravels	1	3	Rip rap	2	3
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Rip rap	2	3	Fill	2	3
								DF											
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Rip rap	2	3	Clean gravels	1	3
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	DF	Causeway	Halfway River Cle	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	DF	Causeway	Halfway River Cle	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	DF	Causeway	Halfway River Cle	0 to 0.1	1	3	Fill	2	3	None	0	3
					434.7m			DF	Causeway	Halfway River Cle	0 to 0.1	1	3	Fill	2	3	None	0	3
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha		6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	DF											
					*Elevation estimated - ~1m lift was added to the structure			DF											
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed	DF	Causeway	Halfway River Cle	0 to 0.1	1	3	Fill	2	3	Geotextile	3	3
								DF											
							Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	DF											
								DF											
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	DF	Causeway	Highway Diversion	0.1 to 0.55	2	3	Fill	2	3	None	0	3
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0.1 to 0.55	2	3	Rip rap	2	3	Fill	2	3
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		DF	Road	Peace River Clear	0.1 to 0.55	2	3	Rip rap	2	3	Clean gravels	1	3
								DF											
								DF											
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3
								DF											
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Rip rap	2	3	Fill	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	QEP Sign Off	Overall Structure Type	Location within Project Footprint	Instream Footprint	Rating	Weight	Material to remain instream (1)	Rating	Weight	Material to remain instream (2)	Rating	Weight
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Fill	2	3	None	0	3
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0 to 0.1	1	3	Fill	2	3	Rip rap	2	3
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	DF DF DF	Crossing	Peace River Clear	0 to 0.1	1	3	Fill	2	3	None	0	3
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		DF	Crossing	Peace River Clear	0 to 0.1	1	3	Fill	2	3	None	0	3
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	DF	Crossing	Peace River Clear	0.1 to 0.55	2	3	Fill	2	3	Rip rap	2	3
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	DF	Crossing		0.1 to 0.55	2	3	Fill	2	3	Corrogated steel c	3	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Material to remain instream (3)	Rating		Full Inundation during Reservoir Filling	Rating		Potential for shoreline exposure during low water?	Rating		Structure potential to become littoral zone?	Rating		Environmental concerns noted in previous reports	Rating	
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02	Anchor 1 – 433.50m	Anchor 1: 6230359 N	No FFHA available as works authorized under FAA.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02	Anchor 2 – 413.90m	628223 E		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02	Anchor 3 – 413.50m	Anchor 2: 6230232 N		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02	Anchor 4 – 413.90m	628279 E		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02	Anchor 4a – 413.50m	Anchor 3: 6230150 N		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02	Anchor 5 – 433.50m	628340		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
						Anchor 4: 6230062 N																
						628387 E																
						Anchor 4a: 6230121 N																
						628369 E																
						Anchor 5: 6229967 N																
						628475 E																
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	Geotextile	3	3	Yes	4	3	No	0	3	No	0	3	No	0	3
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha	RB Downstream Anchor – 433.10 m	6231471N 627602E	Instream footprint includes original access roads, boat launch and boom anchor points.	Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	RB Upstream Anchor – 414.50m	6231731N 627627E	Culverts installed in back channel to access RB anchor to be removed.	Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	LB Downstream Anchor – 433.10 m	6231847N 628135E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	LB Upstream Anchor – 415.80	6231904N 627902E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
							Culverts installed in boat ramp to be removed.															
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m	LB – 6231930 N 628182 E	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
					*Right Bank Access Road – Top Elevation 437.0m	RB – 6231961 N 627044 E		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha	Anchors 1 and 6 Top Elevation 433.0m	Anchor 1:6231520 N 628383 E	No FFHA available as works authorized under FAA.	Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	Anchors 2-5 submerged	Anchor 2:6231483 N 628343 E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	Top Elevations 413 to 417 m	Anchor 3:6231486 N 628264 E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha	Anchors 1-3 on LB	Anchor 4:6231284 N 627975 E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.01 ha	Anchors 4-6 on RB	Anchor 5:6231245 N 627939 E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
				0.02 ha		Anchor 6:6231060 N 627892 E		Clean gravels	1	3	Yes	4	3	No	0	3	No	0	3	No	0	3
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m	RB Access: 6231024 N 627860 E	No FFHA available as works authorized under FAA.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
					Boat Launch – Top Elevation 412.8m	Boat launch: 6231498 N 628237 E		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Material to remain instream (3)	Rating	Weight	Full Inundation during Reservoir Filling	Rating	Weight	Potential for shoreline exposure during low water?	Rating	Weight	Structure potential to become littoral zone?	Rating	Weight	Environmental concerns noted in previous reports	Rating	Weight
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha	434.7m *Elevation estimated - ~1m lift was added to the structure	6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		Geotextile	3	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Material to remain instream (3)	Rating	Weight	Full Inundation during Reservoir Filling	Rating	Weight	Potential for shoreline exposure during low water?	Rating	Weight	Structure potential to become littoral zone?	Rating	Weight	Environmental concerns noted in previous reports	Rating	Weight
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Concrete	3	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Concrete	3	3	Yes	4	3	No	0	3	No	0	3	No	0	3
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Concrete	3	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	Yes	4	3
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	None	0	3	No	0	3	Yes	4	3	No	0	3	No	0	3
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		None	0	3	No	0	3	Yes	4	3	Yes	4	3	No	0	3
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	None	0	3	Yes	4	3	No	0	3	No	0	3	No	0	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Recountering / Restoration Works Conducted?	Rating	Weight	Overall Temporary Structure Rating - Structure Specific	Original Dominant Substrate	Rating	Weight	Original Subdominant Substrate	Rating	Weight	Homogeneity?	Rating	Weight	Dominant substrate created by temporary structure	Rating	Weight
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	No	4	3	1.904762	Gravel	4	3	Fines	3	3	No	4	3	Rip rap	2	3
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	No	4	3	1.964286	Gravel	4	3	Fines	3	3	No	4	3	Gabion armoring	3	3
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	No	4	3	1.904762	Gravel	4	3	Fines	3	3	No	4	3	Rip rap	2	3
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	No	4	3	2.380952	Fines	3	3	Gravel	4	3	No	4	3	Fill	2	3
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	No	4	3	2.261905	Cobble	2	3	Fines	3	3	No	4	3	Concrete	3	3
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	No	4	3	1.785714	Cobble	2	3	Fines	3	3	No	4	3	Steel piles	3	3
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	No	4	3	1.845238	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Clean gravels	1	3
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02	Anchor 1 – 433.50m	Anchor 1: 6230359 N	No FFHA available as works authorized under FAA.	No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02	Anchor 2 – 413.90m	628223 E		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02	Anchor 3 – 413.50m	Anchor 2: 6230232 N		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02	Anchor 4 – 413.90m	628279 E		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02	Anchor 4a – 413.50m	Anchor 3: 6230150 N		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02	Anchor 5 – 433.50m	628340		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
						Anchor 4: 6230062 N																	
						628387 E																	
						Anchor 4a: 6230121 N																	
						628369 E																	
						Anchor 5: 6229967 N																	
						628475 E																	
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	No	4	3	2.142857	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Clean gravels	1	3
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha	RB Downstream Anchor – 433.10 m	6231471N 627602E	Instream footprint includes original access roads, boat launch and boom anchor points.	No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	RB Upstream Anchor – 414.50m	6231731N 627627E	Culverts installed in back channel to access RB anchor to be removed.	No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	LB Downstream Anchor – 433.10 m	6231847N 628135E		No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	LB Upstream Anchor – 415.80	6231904N 627902E		No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	No	4	3	1.72619	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Fill	2	3
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill. Culverts installed in boat ramp to be removed.	No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Fill	2	3
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m	LB – 6231930 N 628182 E	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Fill	2	3
					*Right Bank Access Road – Top Elevation 437.0m	RB – 6231961 N 627044 E		No	4	3	1.904762	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Fill	2	3
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha	Anchors 1 and 6 Top Elevation 433.0m	Anchor 1:6231520 N 628383 E	No FFHA available as works authorized under FAA.	No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	Anchors 2-5 submerged	Anchor 2:6231483 N 628343 E		No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	Top Elevations 413 to 417 m	Anchor 3:6231486 N 628264 E		No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
				0.02 ha	Anchors 1-3 on LB	Anchor 4:6231284 N 627975 E		No	4	3	1.964286	Gravel	4	3	Cobble	2	3	No	4	3	Concrete	3	3
				0.01 ha	Anchors 4-6 on RB	Anchor 5:6231245 N 627939 E		No	4	3	1.964286	Gravel	4	3	Cobble	2	3	No	4	3	Concrete	3	3
				0.02 ha		Anchor 6:6231060 N 627892 E		No	4	3	1.964286	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Concrete	3	3
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m	RB Access: 6231024 N 627860 E	No FFHA available as works authorized under FAA.	No	4	3	2.202381	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
					Boat Launch – Top Elevation 412.8m	Boat launch: 6231498 N 628237 E		No	4	3	2.202381	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Recountering / Restoration Works Conducted?	Rating	Weight	Overall Temporary Structure Rating - Structure Specific	Original Dominant Substrate	Rating	Weight	Original Subdominant Substrate	Rating	Weight	Homogeneity?	Rating	Weight	Dominant substrate created by temporary structure	Rating	Weight
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		No	4	3	2.202381	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Fill	2	3
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	No	4	3	2.678571	Gravel	4	3	Cobble	2	3	No	4	3	Clean gravels	1	3
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	Yes	1	3	2.202381	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	1	3	1.428571	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	Yes	1	3	1.488095	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	1	3	1.488095	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	1	3	2.202381	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	Yes	1	3	1.488095	Gravel	4	3	Cobble	2	3	No	4	3	Fill	2	3
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	Yes	1	3	1.488095	Cobble	2	3	Gravel	4	3	No	4	3	Fill	2	3
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	Yes	1	3	1.309524	Cobble	2	3	Fines	3	3	No	4	3	Fill	2	3
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	Yes	1	3	1.190476	Cobble	2	3	Gravel	4	3	No	4	3	Fill	2	3
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha	434.7m *Elevation estimated - ~1m lift was added to the structure	6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	Yes	1	3	1.190476	Cobble	2	3	Fines	3	3	No	4	3	Fill	2	3
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	Yes	1	3	2.083333	Cobble	2	3	Fines	3	3	No	4	3	Clean gravels	1	3
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	Yes	1	3	1.369048	Cobble	2	3	Gravel	4	3	No	4	3	Clean gravels	1	3
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.202381	Gravel	4	3	Gravel	4	3	Yes	0	3	Rip rap	2	3
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.02381	Gravel	4	3	Gravel	4	3	Yes	0	3	Rip rap	2	3
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.02381	Gravel	4	3	Gravel	4	3	Yes	0	3	Rip rap	2	3
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.02381	Other	1	3	Other	1	3	Yes	0	3	Rip rap	2	3
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.02381	Fines	3	3	Fines	3	3	Yes	0	3	Rip rap	2	3
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		No	4	3	2.857143	Structure not inst	0	3	Structure not inst	0	3	Yes	0	3	Clean gravels	1	3
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	No	4	3	2.559524	Other	1	3	Other	1	3	Yes	0	3	Rip rap	2	3
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.02381	Other	1	3	Other	1	3	Yes	0	3	Rip rap	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Recountering / Restoration Works Conducted?	Rating	Weight	Overall Temporary Structure Rating - Structure Specific	Original Dominant Substrate	Rating	Weight	Original Subdominant Substrate	Rating	Weight	Homogeneity?	Rating	Weight	Dominant substrate created by temporary structure	Rating	Weight
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	Yes	1	3	1.904762	Cobble	2	3	Gravel	4	3	No	4	3	Fill	2	3
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.380952	Fines	3	3	Gravel	4	3	No	4	3	Fill	2	3
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	1.488095	Fines	3	3	Gravel	4	3	No	4	3	Fill	2	3
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.380952	Fines	3	3	Gravel	4	3	No	4	3	Fill	2	3
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	2.202381	Fines	3	3	Gravel	4	3	No	4	3	Rip rap	2	3
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	Yes	1	3	1.190476	Gravel	4	3	Fines	3	3	No	4	3	Fill	2	3
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		Yes	1	3	1.904762	Fines	3	3	Gravel	4	3	No	4	3	Fill	2	3
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	1	3	1.488095	Gravel	4	3	Fines	3	3	No	4	3	Fill	2	3
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	No	4	3	2.083333	Fines	3	3	Fines	3	3	Yes	0	3	Fill	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Species at Risk within area	Rating	Weight	PCOCs?	Rating	Weight	Potential for Entrapment?	Rating	Weight	Structure has potential to partially or fully restrict flow / fish movement	Rating	Weight	Structure source for erosion or sedimentation	Rating	Weight
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Yes - shortterm	2	3
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	Yes	4	3	No	0	3	No	0	3	Partial	2	3	Yes - shortterm	2	3
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	Yes	4	3	No	0	3	No	0	3	Partial	2	3	Yes - shortterm	2	3
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02	Anchor 1 – 433.50m	Anchor 1: 6230359 N	No FFHA available as works authorized under FAA.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02	Anchor 2 – 413.90m	628223 E		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02	Anchor 3 – 413.50m	Anchor 2: 6230232 N		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02	Anchor 4 – 413.90m	628279 E		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02	Anchor 4a – 413.50m	Anchor 3: 6230150 N		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02	Anchor 5 – 433.50m	628340		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
						Anchor 4: 6230062 N																
						628387 E																
						Anchor 4a: 6230121 N																
						628369 E																
						Anchor 5: 6229967 N																
						628475 E																
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha	RB Downstream Anchor – 433.10 m	6231471N 627602E	Instream footprint includes original access roads, boat launch and boom anchor points.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	RB Upstream Anchor – 414.50m	6231731N 627627E	Culverts installed in back channel to access RB anchor to be removed.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	LB Downstream Anchor – 433.10 m	6231847N 628135E		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	LB Upstream Anchor – 415.80	6231904N 627902E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill. Culverts installed in boat ramp to be removed.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m *Right Access Road – Top Elevation 437.0m	LB – 6231930 N 628182 E RB – 6231961 N 627044 E	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
								Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha	Anchors 1 and 6 Top Elevation 433.0m	Anchor 1:6231520 N 628383 E	No FFHA available as works authorized under FAA.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	Anchors 2-5 submerged	Anchor 2:6231483 N 628343 E		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	Top Elevations 413 to 417 m	Anchor 3:6231486 N 628264 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha	Anchors 1-3 on LB	Anchor 4:6231284 N 627975 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.01 ha	Anchors 4-6 on RB	Anchor 5:6231245 N 627939 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
				0.02 ha		Anchor 6:6231060 N 627892 E		No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m	RB Access: 6231024 N 627860 E	No FFHA available as works authorized under FAA.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
					Boat Launch – Top Elevation 412.8m	Boat launch: 6231498 N 628237 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Species at Risk within area	Rating	Weight	PCOCs?	Rating	Weight	Potential for Entrapment?	Rating	Weight	Structure has potential to partially or fully restrict flow / fish movement	Rating	Weight	Structure source for erosion or sedimentation	Rating	Weight
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	Yes	4	3	No	0	3	No	0	3	Partial	2	3	Yes - longterm	4	3
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	No	0	3	No	0	3	No	0	3	Partial	2	3	Yes - shortterm	2	3
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha	434.7m *Elevation estimated - ~1m lift was added to the structure	6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	Yes	4	3	No	0	3	No	0	3	Partial	2	3	Yes - shortterm	2	3
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	Yes	4	3	No	0	3	No	0	3	No	0	3	No	0	3
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	Partial	2	3	Yes - shortterm	2	3
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Species at Risk within area	Rating	Weight	PCOCs?	Rating	Weight	Potential for Entrapment?	Rating	Weight	Structure has potential to partially or fully restrict flow / fish movement	Rating	Weight	Structure source for erosion or sedimentation	Rating	Weight
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		Yes	4	3	No	0	3	Yes	4	3	Partial	2	3	Yes - shortterm	2	3
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	Yes	4	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	No	0	3	No	0	3	No	0	3	No	0	3	Yes - shortterm	2	3

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Overall Temporary Structure Rating - Fish Habitat	Deactivated?	Rating	Weight	Reactivation required for removal?	Rating	Weight	Instream work required for removal?	Rating	Weight	Additional instream works footprint for removal works?	Rating	Weight	Effort Required for Removal
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	2.638889	No	0	3	No	0	3	Yes	4	3	Yes	4	3	Heavy equipment
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	3.333333	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	2.638889	No	0	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	2.777778	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	2.777778	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	0.416667	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02	Anchor 1 – 433.50m	Anchor 1: 6230359 N	No FFHA available as works authorized under FAA.	0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02	Anchor 2 – 413.90m	628223 E		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02	Anchor 3 – 413.50m	Anchor 2: 6230232 N		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02	Anchor 4 – 413.90m	628279 E		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02	Anchor 4a – 413.50m	Anchor 3: 6230150 N		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02	Anchor 5 – 433.50m	628340		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
						Anchor 4: 6230062 N															
						628387 E															
						Anchor 4a: 6230121 N															
						628369 E															
						Anchor 5: 6229967 N															
						628475 E															
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	0.416667	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha	RB Downstream Anchor – 433.10 m	6231471N 627602E	Instream footprint includes original access roads, boat launch and boom anchor points.	0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	RB Upstream Anchor – 414.50m	6231731N 627627E	Culverts installed in back channel to access RB anchor to be removed.	1.25	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	LB Downstream Anchor – 433.10 m	6231847N 628135E		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	LB Upstream Anchor – 415.80	6231904N 627902E		1.25	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	1.111111	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill.	1.111111	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
							Culverts installed in boat ramp to be removed.														
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m	LB – 6231930 N	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	1.111111	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
						628182 E															
					*Right Bank Access Road – Top Elevation 437.0m			1.111111	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
						RB – 6231961 N															
						627044 E															
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha	Anchors 1 and 6 Top Elevation 433.0m	Anchor 1:6231520 N 628383 E	No FFHA available as works authorized under FAA.	0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	Anchors 2-5 submerged	Anchor 2:6231483 N 628343 E		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	Top Elevations 413 to 417 m	Anchor 3:6231486 N 628264 E		1.25	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha	Anchors 1-3 on LB	Anchor 4:6231284 N 627975 E		2.638889	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.01 ha	Anchors 4-6 on RB	Anchor 5:6231245 N 627939 E		2.638889	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
				0.02 ha		Anchor 6:6231060 N 627892 E		0.694444	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m	RB Access: 6231024 N 627860 E	No FFHA available as works authorized under FAA.	2.5	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
					Boat Launch – Top Elevation 412.8m	Boat launch: 6231498 N 628237 E		2.5	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Overall Temporary Structure Rating - Fish Habitat	Deactivated?	Rating	Weight	Reactivation required for removal?	Rating	Weight	Instream work required for removal?	Rating	Weight	Additional instream works footprint for removal works?	Rating	Weight	Effort Required for Removal
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		1.111111	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	2.361111	No	0	3	No	0	3	Yes	4	3	Yes	4	3	Heavy equipment
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	3.055556	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	1.944444	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	1.805556	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	2.222222	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha	434.7m *Elevation estimated - ~1m lift was added to the structure	6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	2.361111	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	2.5	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	2.083333	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.222222	Yes	4	3	No	0	3	Yes	4	3	Yes	4	3	Heavy equipment
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.222222	Yes	4	3	No	0	3	Yes	4	3	Yes	4	3	Heavy equipment
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.222222	Yes	4	3	No	0	3	Yes	4	3	Yes	4	3	Heavy equipment
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	1.388889	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.222222	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		0.972222	No	0	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	1.388889	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	1.388889	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment

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37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	2.5	Yes	4	3	No	0	3	Yes	4	3	No	0	3	Heavy equipment
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		3.472222	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	2.638889	Yes	4	3	Yes	4	3	Yes	4	3	Yes	4	3	Heavy equipment
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	1.388889	No	0	3	Yes	4	3	Yes	4	3	No	0	3	Heavy equipment

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Rating	Weight	Days required instream	Rating	Weight	How many stream crossings required for access?	Rating	Weight	Overall Removal Rating
1	Hwy 29 at Cache Creek	Detour Bridge	• Concrete abutments • Riprap	0.007ha	435 m	6237592 N 609153 E	Included in Cache Creek Bridge FFHA	4	3	>one month	4	3	0	0	3	3.125
2	Hwy 29 at Cache Creek	Diversion Channel	• Including Polymer coated, galvanized steel rock-filled gabions armouring diversion channel	0.3ha (diversion channel footprint)	434 m	6238064 N 608917 E	Included in Cache Creek Bridge FFHA	4	3	>one month	4	3	1	0.4	3	4.4375
3	Hwy 29 at Farrell Creek	Diversion Channel	• Rip Rap Diversion Berm	0.136ha (River Diversion Berm)	444 m	6220246 N 578596 E	Included in Farrell Creek Bridge FFHA	4	3	>one month	4	3	1	0.4	3	4.4375
4	Hwy 29 Lynx Creek embankment	4 temporary causeways used to access material for construction of embankment	• Causeways	4.1 ha	< 455 m	6218126 N 574113 E	Included in Lynx Creek East FFHA	4	3	>one month	4	3	1	0.4	3	3.8125
5	Dam Site	Moberly River Bridge	• Causeways and abutments to be inundated.	1.56 ha	416.6 m	6230034 N 628472 E	No FFHA available as works authorized under FAA.	4	3	>one month	4	3	1	0.4	3	3.1875
6	Dam Site	Moberly River Debris Piles	44 Debris piles to be inundated	0.002 ha	419.2 m	6229993 N 628447 E	FFHA attached	4	3	>one month	4	3	1	0.4	3	2.5625
7	Dam Site	Moberly River Debris Piles	Access ramp for debris removal	0.104 ha	< 445 m elev.	6230058 N 628449 E	FFHA attached	4	3	>one week	3	3	1	0.4	3	1.78125
8	Dam Site	Moberly River Debris Boom	• 6 Anchors	0.02	Anchor 1 – 433.50m	Anchor 1: 6230359 N	No FFHA available as works authorized under FAA.	4	3	>one week	3	3	1	0.4	3	1.78125
				0.02	Anchor 2 – 413.90m	628223 E		4	3	>one week	3	3	1	0.4	3	1.78125
				0.02	Anchor 3 – 413.50m	Anchor 2: 6230232 N		4	3	>one week	3	3	1	0.4	3	1.78125
				0.02	Anchor 4 – 413.90m	628279 E		4	3	>one week	3	3	1	0.4	3	1.78125
				0.02	Anchor 4a – 413.50m	Anchor 3: 6230150 N		4	3	>one week	3	3	1	0.4	3	1.78125
				0.02	Anchor 5 – 433.50m	628340		4	3	>one week	3	3	1	0.4	3	1.78125
						Anchor 4: 6230062 N										
						628387 E										
						Anchor 4a: 6230121 N										
						628369 E										
						Anchor 5: 6229967 N										
						628475 E										
9	Dam Site	Moberly River Debris Boom Access Road	• Entire Access	0.32 ha	From 443m to 420m	Start: 6230370 N 628192 E End: 6230262 N 628231 E	No FFHA available as works authorized under FAA.	4	3	>one week	3	3	0	0	3	1.71875
10	Dam Site	Upstream Peace River Debris Boom	• 4 Anchors constructed of concrete with gravel and rip rap armour. Total instream footprint 1.899 ha.	0.02 ha	RB Downstream Anchor – 433.10 m	6231471N 627602E	Instream footprint includes original access roads, boat launch and boom anchor points.	4	3	>one week	3	3	1	0.4	3	1.78125
				0.02 ha	RB Upstream Anchor – 414.50m	6231731N 627627E	Culverts installed in back channel to access RB anchor to be removed.	4	3	>one week	3	3	1	0.4	3	2.40625
				0.02 ha	LB Downstream Anchor – 433.10 m	6231847N 628135E		4	3	>one week	3	3	0	0	3	1.71875
				0.02 ha	LB Upstream Anchor – 415.80	6231904N 627902E		4	3	>one week	3	3	0	0	3	2.34375
11	Dam Site	Upstream Peace River Debris Boom	• Barge pad extension consisting of granular material	0.12 ha	Top elevation: 420m	6231784 N 628021 E	FFHA attached	4	3	>one week	3	3	0	0	3	2.34375
12	Dam Site	Upstream Peace River Debris Boom	• Boat Ramp extension	0.195 ha	415.8 m	6231781 N 627604 E	Stated in the LTC11D application that it will be inundated during reservoir fill.	4	3	>one week	3	3	1	0.4	3	2.40625
							Culverts installed in boat ramp to be removed.									
13	Dam Site	Upstream Peace River Debris Boom	• Access Roads	Included in total area listed above	*Left Bank Access Road – Top Elevation 449.8 m	LB – 6231930 N 628182 E	Stated in LTC11D application that they will be inundated during reservoir fill. Culverts in LB access road to be removed.	4	3	>one week	3	3	1	0.4	3	2.40625
					*Right Bank Access Road – Top Elevation 437.0m	RB – 6231961 N 627044 E		4	3	>one week	3	3	0	0	3	2.34375
14	Dam Site	Temporary Downstream Peace River Debris	• 6 concrete block anchors. Total instream 1.899 ha	0.02 ha	Anchors 1 and 6 Top Elevation 433.0m	Anchor 1:6231520 N 628383 E	No FFHA available as works authorized under FAA.	4	3	>one week	3	3	0	0	3	1.71875
				0.02 ha	Anchors 2-5 submerged	Anchor 2:6231483 N 628343 E		4	3	>one week	3	3	0	0	3	1.71875
				0.02 ha	Top Elevations 413 to 417 m	Anchor 3:6231486 N 628264 E		4	3	>one week	3	3	0	0	3	2.34375
				0.02 ha	Anchors 1-3 on LB	Anchor 4:6231284 N 627975 E		4	3	>one day	2	3	1	0.4	3	2.25
				0.01 ha	Anchors 4-6 on RB	Anchor 5:6231245 N 627939 E		4	3	>one day	2	3	1	0.4	3	2.25
				0.02 ha		Anchor 6:6231060 N 627892 E		4	3	>one week	3	3	0	0	3	1.71875
15	Dam Site	Temporary Downstream Peace River Debris	• Access road and Boat Launch	1.09 ha	Right Bank Access Road – Top Elevation 442.5m	RB Access: 6231024 N 627860 E	No FFHA available as works authorized under FAA.	4	3	>one week	3	3	1	0.4	3	2.40625
					Boat Launch – Top Elevation 412.8m	Boat launch: 6231498 N 628237 E		4	3	>one week	3	3	1	0.4	3	2.40625

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Rating	Weight	Days required instream	Rating	Weight	How many stream crossings required for access?	Rating	Weight	Overall Removal Rating
					Left Bank Access Road – Top Elevation 445m	LB Access: 6231366 N 628381 E		4	3	>one week	3	3	0	0	3	2.34375
16	Reservoir (LTC12D) – Halfway River Drainage	Crossing MR43	Causeway Road	0.487 ha	444.38 m		This structure remains in place and has not been deactivated.	4	3	>one week	3	3	0	0	3	2.96875
17	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.3A	Abutments and causeways (granular fill)	0.541 ha	443.1 m	6232523 N 593433 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and	4	3	>one week	3	3	1	0.4	3	4.28125
18	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2A	Abutments and causeways (granular fill)	0.333 ha	445.8 m	6233949 N 592744 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	4	3	>one week	3	3	1	0.4	3	4.28125
19	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2B	Abutments and causeways (granular fill)	0.136 ha	448.0 m	6234244 N 592135 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet.	4	3	>one month	4	3	1	0.4	3	4.4375
20	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2C	Abutments and causeways (granular fill)	0.379 ha	449.1 m	6234028 N 591863 E	Site visits in August 2021 confirmed that partial causeway erosion had occurred during freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	4	3	>one week	3	3	2	0.9	3	4.359375
21	Reservoir (LTC12D) – Halfway River Drainage	Crossing WR19.2D	Abutments and causeways (granular fill)	0.36 ha	451.3 m	6233757 N 591262 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Sept 2021, Riprap armouring of causeways and abutments was partially removed. Expected that further erosion occurred in 2022.	4	3	>one week	3	3	3	1.3	3	4.421875
22	Reservoir (LTC12D) – Halfway River Drainage. Revised 19-2E Crossing	Crossing WR19.2E	Abutments and causeways (granular fill)	0.346 ha	454.9 m	6234798 N 590461 E	August 2021, majority of the crossing had eroded. Sept 2021, small amounts of riprap were removed. Expected that further erosion occurred in 2022.	4	3	>one month	4	3	4	1.8	3	4.65625
23	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2F	Abutments and causeways (granular fill)	0.177 ha	454.0 m	6234392 N 590274 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet, small amounts of riprap remain.	4	3	>one month	4	3	5	2.2	3	4.09375
24	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.2I	Abutments and causeways (granular fill)	0.05 ha	455 m	6233331 N 589661 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Only one causeway remained, estimated at 500m2, and further erosion expected to have occurred in 2022. Structure lowered during deactivation.	4	3	>one month	4	3	9	4	3	4.375
25	Reservoir (LTC12D) – Halfway River Drainage. New Crossings 19-2FGHI	Crossing WR19.7B	Abutments and causeways (granular fill)	0.048 ha	455 m	6233752 N 590281 E	August 2021, partial erosion of the causeways and abutments had occurred after freshet. Further erosion expected to have occurred in 2022. Structure was lowered to 455m during deactivation.	4	3	>one month	4	3	8	3.6	3	4.3125
26	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1A	Abutments and causeways (granular fill)	0.091 ha	434.7m *Elevation estimated - ~1m lift was added to the structure	6230106 N 594542 E	An additional lift of material was added to the road, increasing instream footprint and elevation. The lift was field fit and no precise calculation exists.	4	3	>one week	3	3	1	0.4	3	4.28125
27	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR18.1B	Abutments and causeways (granular fill)	** do not have info as it was converted to a bridge**	435 m	6229410 N 593741 E	*LTC also includes 18.1C/D. But these were never constructed Riprap has been partially removed, granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	4	3	>one week	3	3	1	0.4	3	4.28125
28	Reservoir (LTC15A-12E2 NB Halfway River to Farrell Creek)	Crossing WR27a	Abutments and causeways (granular fill)	0.208 ha	437.44m	6224522 N 587153 E	Granular fill was still in place as of July 2021, with some erosion present. Further erosion is expected to have happened in 2022.	4	3	>one month	4	3	1	0.4	3	4.4375
29	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR13	Abutments and causeways (granular fill)	0.168 ha	437.2 m	6225131 N 588603 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	1	0.4	3	3.65625
30	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR12	Abutments and causeways (granular fill)	0.01 ha	437.2 m	6225090 N 588400 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	1	0.4	3	3.65625
31	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing W11c	Abutments	0.029 ha	438.2 m	6224152 N 587522 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	3	1.3	3	3.796875
32	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR11b	Abutments	0.025 ha	438.9 m	6224231 N 587529 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	2	0.9	3	3.109375
33	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR10	Abutments	0.015 ha	443.4 m	6223818 N 587237 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	4	1.8	3	3.25
34	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	200Rd. Extension Keyed-In Fill	Causeway road structure constructed parallel to the Peace River. Rip rap and gravel materials to remain in place. Geotextile will also remain	0.382 ha	441 m	6223560 N 587068 E		4	3	>one week	3	3	5	2.2	3	2.6875
35	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR7	Abutments and pier	0.073 ha	438.9 m	6223089 N 586659 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	6	2.7	3	3.390625
36	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR6a	Abutments and pier	0.067 ha	439.9 m	6222781 N 586373 E	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	7	3.1	3	3.453125

#	Location	Structure	Portion to remain instream	Instream Footprint	Top Elevation	Coordinates	Comments - from BCH	Rating	Weight	Days required instream	Rating	Weight	How many stream crossings required for access?	Rating	Weight	Overall Removal Rating
37	Reservoir (LTC15D) – SB – Halfway River to Farrell Creek Phase 2	Crossing WR5	Abutment	0.016 ha	448.6 m	6221724 N 584913 E (**a number missing in the FHHA**)	Crossing was deactivated in March 2022. A post-erosion assessment has not been completed. Minimal granular fill has been left in place with no riprap – little to no erosion is expected.	4	3	>one week	3	3	8	3.6	3	3.53125
38	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR4	Abutments and causeway	0.278 ha	451.3 m	6212136 N 571164 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one month	4	3	4	1.8	3	4.65625
39	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR3	Abutments and causeway	0.059 ha	451.6 m	6212035 N 570932 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one month	4	3	4	1.8	3	4.65625
40	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR2	Abutments and causeway	0.139 ha	452.4 m	6211435 N 570275 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	3	1.3	3	4.421875
41	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR1	Abutments and causeway	0.245 ha	454.2 m	6209787 N 568568 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	2	0.9	3	4.359375
42	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR32	Abutments	0.073 ha	455.6 m *abutments were partially pulled back during deactivation and are assumed to be lower than 455m	6209165 N 568137 E	Crossing was deactivated in June 2022. A post-erosion assessment has not been completed. Riprap was removed but granular fill left in place.	4	3	>one week	3	3	1	0.4	3	4.28125
43	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33a	Laydown constructed out of fill material for staging and building of bridge components within a Peace River back channel	0.1 ha	Unavailable	6209096 N 568054 E		4	3	>one week	3	3	1	0.4	3	4.28125
44	Reservoir (LTC15E) Farrell Creek to Peace Canyon	Crossing WR33	Abutments and causeway	0.259 ha	455.1 m	6209051 N 567960 E	Crossing was deactivated in February 2022. A post-erosion assessment has not been completed. Riprap and granular fill left in place.	4	3	>one week	3	3	1	0.4	3	4.28125
45	Reservoir (LTC4B) Watson Slough	Crossing WS-01	Abutments	TBD	Unconfirmed, approx. 451m	6236282 N 607508 E	Excavation of granular material; fording Crossing located in a non-fish bearing wetland. Currently under construction for use in '22/'23 clearing activity Crossing is a 600mm culvert structure with granular fill over a small drainage between wetted areas in a wetland	4	3	>one week	3	3	1	0.4	3	2.40625

Appendix C: Indigenous Groups and Rights

- Assessment of Impact of Proposed Amendment on Indigenous Groups and Rights

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Schedule 25 Environmental Assessment Act

BC Hydro is submitting a request to amend EAC #E14-02 for the Site C Clean Energy Project (the Project) to amend EAC Condition #4 to reflect that temporary structures be removed ***unless removing the structure is likely to result in harm to fish and fish habitat and/or retaining the structure will provide a benefit to fish, as assessed by a Qualified Environmental Professional*** (emphasis added). Please find below additional information regarding BC Hydro's assessment of *Environmental Assessment Act* (EAA) Section 25 requirements in support of our amendment request.

Overall, the requested amendment is not anticipated to result in any changes to the matters outlined in Section 25 of the EAA as follows:

a) positive and negative direct and indirect effects of the reviewable project, including environmental, economic, social, cultural and health effects and adverse cumulative effects

- Please refer to BC Hydro's EAC Amendment Request, which indicates that the requested amendments are not anticipated to cause any adverse effects on valued components beyond the effects that were considered and approved during the environmental assessment of the Project.

- The following valued components were reviewed and are described in the amendment request as they were assessed as interacting with the proposed amendment: fish and fish habitat, current use of lands and resources for traditional purposes, harvest of fish and wildlife and navigation.

b) risks and uncertainties associated with those effects, including the results of any interaction between effects

- Please refer to BC Hydro's EAC Amendment Request which includes a description of the assessment of effects on valued components for the proposed amendments.

c) risks of malfunctions or accidents

- The proposed amendment is not anticipated to result in increased risks to malfunctions or accidents compared to the EAC designs.

d) disproportionate effects on distinct human populations, including populations identified by gender

- The proposed amendment is not anticipated to have disproportionate effects on distinct human populations, including populations identified by gender.

e) effects on biophysical factors that support ecosystem function

- Please refer to BC Hydro's EAC Amendment Request, which indicates that the proposed amendment is not anticipated to cause any adverse effects on valued components beyond the effects that were considered and approved during the environmental assessment of the Project. The assessment of valued components includes biophysical factors (fish and fish habitat) that support ecosystem function.

f) effects on current and future generations

- The proposed amendment is not anticipated to result in adverse effects on current or future generations.

g) consistency with any land-use plan of the government or an Indigenous nation if the plan is relevant to the assessment and to any assessment conducted under section 35 or 73.

- The proposed amendment is consistent with land use planning and is being consulted on with Indigenous Nations.

h) greenhouse gas emissions, including the potential effects on the province being able to meet its targets under the *Greenhouse Gas Reduction Targets Act*

- The proposed amendment is not anticipated to interact with the valued component of greenhouse gas emissions or have any effect on the province being able to meet its targets under the Greenhouse Gas Reduction Targets Act.

i) alternative means of carrying out the project that are technically and economically feasible, including through the use of the best available technologies, and the potential effects, risks and uncertainties of those alternatives

- Please refer to BC Hydro's EAC Amendment Request which describes the rationale for the proposed amendment.

j) potential changes to the reviewable project that may be caused by the environment

- Potential Effects of the Environment on the Project are described in Section 37.1 of the Project's Environmental Impact Statement (EIS). The proposed amendment is not anticipated to result in any changes to the EIS assessment of these effects.

Appendix D: Site C Environmental Assessment Certificate #14-02

- List of EAC Amendments for the Site C Project to date.

Amendment #	Amendment Date	Project Component	Amendment Details
#1	June 22, 2018	Generating Station & Spillway	Revision to *Schedule A* to accommodate design changes to the generating station and spillways.
#2	October 26, 2018	Highway 29 Halfway River Bridge	Revision to *Schedule A* for design changes to the Highway 29 Halfway River Bridge.
#3	November 14, 2018	West Pine Quarry	Revision to *Schedule A* for the use of West Pine Quarry as a material source for the Highway 29 realignment and Hudson's Hope Berm and the addition of Condition 78 to *Schedule B* for the development of a West Pine Haul Route Traffic Management Plan.
#4	February 12, 2019	Riparian Zones	Revision to *Schedule B* Condition 4 and Condition 13 to accommodate the selective use of machinery to clear in riparian areas.
#5	December 13, 2019	Highway 29 Cache Creek	Revision to *Schedule A* for design changes to the Highway 29 Cache Creek Bridge and Realignment and the addition of Condition 79 to *Schedule B* for Noise Monitoring and Mitigation.
#6	December 13, 2019	Worker Accommodation	Revision to *Schedule A* to accommodate an expansion of the Worker Accommodation camp facilities and capacity.
#7	May 27, 2020	Highway 29 Farrell Creek, Dry Creek, Lynx Creek.	Revision to *Schedule A* for design changes to the Farrell Creek, Dry Creek and Lynx Creek Bridge.
#8	November 24, 2020	Halfway River East Borrow Source	Revision to *Schedule A* to accommodate the addition of a Borrow Source at Halfway River East to be used for the development of reservoir clearing access roads.
#9	May 6, 2022	Halfway River East Boat Launch	Revision to Condition 40 of *Schedule B* to relocate the planned Cache Creek Boat Launch to Halfway River East and an addition to Condition 40 requiring BC Hydro to fund a Conservation Officer position for 5 years.
#10	June 30, 2022	85th Ave Contingency Haul Route	Revision to Schedule A to accommodate contingency hauling from 85th Avenue to the dam site and the addition of Condition 81 to *Schedule B* for Truck Hauling Management.